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EDITORIAL

A RARE TREAT

The United States Public Health Service, State Board of Health and County and City Health Departments will present an Institute of Public Health in Louisville January 30 to February 4, and a National Health Exposition from February 1 to 9 inclusive. This course will be held in conjunction with the Annual Conference of County and City Health Officers, and the Kentucky Public Health Association will meet during the week. Among the distinguished members of the faculty from other States will be:

Dr. M. J. Rosenau, Dean of the Harvard School of Public Health.

Dr. Mary Riggs Noble, Director of Bureau of Child Hygiene, Pennsylvania State Board of Health.

Dr. Wm. A. Evans, Former Health Officer of Chicago, and the most distinguished public health editor in America.

Dr. George T. Palmer, President of the Illinois Tuberculosis Association, and Director of the Bureau of Tuberculosis of the Illinois State Board of Health.

Dr. Frederick R. Green, Secretary, Council on Health and Public Instruction, American Medical Association.

Dr. Valeria H. Parker, Director, Interdepartmental Board of Social Hygiene.

Dr. John H. Stokes, Distinguished Syphilographer of the Mayo Clinic.

Dr. Frankwood Williams, Director, National Association for Mental Hygiene.

Dr. W. S. Rankin, State Health Officer of North Carolina, a member of the Council on Health and Public Instruction of the American Medical Association, recently President of the American Public Health Association.

Dr. John Dill Robertson, Health Officer of Chicago.

Dr. John R. McDowell, Director of Health for the Lake Division, American Red Cross.

Dr. John R. McMullen, United States Public Health Service.

Miss Frances Brink, Director, National Organization for Public Health Nursing.

Other names will be announced later. More than $50,000 will be expended in the development of the National Health Exposition, and it is expected that thousands of people from Kentucky and adjacent States will attend and see this remarkable demonstration of progress in public health. The medical profession and people of Louisville propose to be the hosts to the people of all the section adjacent to Louisville, and the week will be devoted to the intensive study of public and personal health.

This advance notice is written so that the health officers, physicians, nurses, teachers, lawyers, farmers and everybody else interested in public health may make an engagement with themselves to be present through as much of the week as possibble.

VERMONT

The Green Mountain State of Vermont is a long way from Kentucky, and yet its problems in public health and medical education are quite similar. The editor of the JOURNAL was honored by being invited to deliver the annual oration before the Vermont Medical Association at its recent meeting in St. Albans, and he has rarely had the opportunity of appearing before a finer body of men and women. It was of especial interest that less than ten percent of the physicians present at the annual meeting were unaccompanied by their wives. At the banquet and all other entertainments, as well as during the scientific sessions, the ladies were present in large numbers and contributed very greatly to the interest of the meetings. The scientific program was of great interest.

Vermont is a distinctly agricultural State, the largest city in it having 22,000 population. Its health department is strongly centralized and most of the public health work of the State is directed by its distinguished State Health Commissioner, Dr. C. F. Dalton. It is intimately connected with the University of Vermont. It has a splendid Medical Department, and it has produced many of the great physicians of the country.

It was very gratifying to be able to tell the profession of Vermont of the united, strongly democratic organization we have built up in Kentucky, and it is in turn both an honor and a pleasure to transmit to the physicians of Kentucky some of the inspiration and stimulation received by your Secretary from his week's association with one of the most delightful professional organizations it has ever been his pleasure to be associated with.

SPLENDID RECOGNITION OF KENTUCKY'S SCHOOL OF PUBLIC HEALTH

The reputation of the School of Public Health of the University of Louisville, which is being conducted in the State Board of Health Building at Louisville, for its high standards in training public health nurses, is beginning to receive material outside recognition.

The American Red Cross from the beginning has provided, in each course, several students with scholarships. This great organization has also furnished the School with its Director, paying her entire salary.

Last year, Judge Robert Worth Bingham and Dr. Michael L. Ravitch gave scholarships for two splendid nurses. E. R. Squibbs & Company have just announced that they will give a scholarship for the next term and have already sent a check for it to the Director of the School.

The graduates of the School in this and other states are doing splendid work. The next term begins February 1, 1922. Physicians desiring to take the public health course and graduate nurses desiring to take the public health nursing course are invited to correspond with the director.

A recent activity of the School is the opening of an offer in training for laboratory technicians. Physicians in this and other States are constantly writing to the various public health organizations in an effort to get young women as office assistants who are trained in practical laboratory work. The next course will begin January 1st, and for the first term of six months there will necessarily be a limited class accepted. There are two vacancies, and applications from High School girls will be considered. This is a splendid opportunity for young women to enter a developing profession.

ORIGINAL ARTICLES.

A STUDY OF THE GALL BLADDER BY THE LYON-METZER METHOD.*

By Curran Pope, Louisville.

Medicine has made another advance. Another milestone has been passed on the road that leads to the ultimate aim and object of our profession, the discovery of disease causes, the prevention of illness and disability and the restoration of all the sick to efficiency and activity. The basic and fundamental necessity of success in such an Utopian endeavor is full, accurate and complete knowledge of all of those activities that result in disorder or disease. Diagnosis is the rock-ribbed granite hills of medicine, and unless we build upon the rock we shall share the fate of those whose houses rest on shifting sands. Surgery for many years has been invading the realm of medicine, but medicine seems to have turned and taken laurels for herself from out the field that had been marked as purely and mechanistically surgical. The truth lies between, each is but the handmaiden of the other in the one single endeavor of a great profession, the *restituteo ad integrum* of suffering humanity. For many years we have known of the far reaching effects of bacterial activity or infection. We know that these poisons, even from so small an area as teeth and tonsil can produce profound disturbances of the entire body. We diligently seek to find the origin or source of these poisons, and aim by correcting the focus of causation, by removing the active products already produced, to restore to health. For centuries we have recognized the intestine as a source of disease, especially in its colonic portion and that its mighty glandular adnexa, the liver and its gall bladder were most frequently the site of infective processes, causing well defined local disturbance and involving distant organs through toxins absorbed from this source. Many years ago, Babcock (1) called attention to the myocardial involvement which nearly always accompanied any infection of the ducts, gall bladder and liver, and cited many cases relieved by removing the provocative infective focus. During all these years I have reversed the process; that is to say, where I have found myocardial involvement and I could rule out other foci of infection, I have tried to "couple-up" the myocardial disturbance with the hepatic structures. From the dim past, our ancient confreres insisted, wrote and believed that mental depression, the "blues," that "melancholy of Cerebus and darkest midnight born" had its origin in the "black bile" and that the patient was benefited by a free and prompt removal of the offending gall. That toxemia arising from the region that embaces the pylorus, duodenum, pancreas, gall duct, gall bladder and bile ducts and which I am pleased to term, "Hell's whole acre," can and does, produce profound and serious disturbances, both local and general, will I am sure go unchallenged. It is to this new field of study and research that I wish specifically to call your attention. To Einhorn (2) must be given the credit for his excellent pioneer work in the duodenal field and his ingenious device for obtaining the duodenal secretion and the bile. His many excellent methods of research, diagnosis and analysis of these secretions (2) entitle him to a premier position in this field.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

Of late, Lyon (3) has blazed a way to a non-surgical method of draining the gall duct, gall bladder and bile ducts that gives promise of a brilliant future. He was inspired to the active application of his now well known method by the observations of Meltzer (4) of the Rockefellar Institute, who said:

"In experiments with magnesium sulphate I observed that the local application of a 25 per cent solution of that salt on the mucosa (of the duodenum) causes a completely local relaxation of the intestinal wall. It does not exert such an effect when the salt is administered by the mouth—that is when it has to pass through the stomach before it reaches the intestines. The duodenal tube, however, apparently has reached an efficient practical stage. I make, therefore, the suggestion to test in jaundice and biliary colic the local application of a 25 per cent solution of magnesium sulphate by means of the duodenal tube. It may relax the sphincter of the common duct and permit the ejection of bile, and perhaps even permit the removal of a calculus of moderate size wedged in the duct in front of the papilla of Vater. Twenty-five cc. of the solution as a dose for an adult will bring no harm. For babies the dose should not exceed 4 cc. The procedure could be developed into a practical useful method."

Briefly epitomized, we may say that the Lyon-Meltzer method consists essentially of the introduction of a sterile duodenal tube and bucket into the stomach; the stomach is then cleaned and sterilized; the bucket allowed sufficient time to enter the duodenum. When this is attained, its contents are aspirated and the bile secured in three or four parts. While in the duodeno-bilary region, the hepatic tract (gall duct, bladder and bile ducts) is stimulated by magnesium sulphate in solution (usually 25 per cent) and in various amounts. It is usual to expect a flow of bile within a very short time, two to twenty minutes, which is evacuated by the vacuum method or bottle. The magnesium sulphate appears to be, according to the Meltzer theory, a chemical messenger (or hormone) possessing the ability not only to relax the sphincter of the common bile duct at the ampulla of Vater, releasing the contained bile and draining the tract, but simultaneously causes the gall bladder to contract and thus evacuate its contents. In my own work I find it of special advantage to carefully save and study the gastric juice of the fasting stomach, especially in view of the recent communications of Rehfuss and Hawk (5) followed by the aspiration and study of the duodenal secretions, after which the bilary study is made by the usual routine of Lyons. The bile is collected in three portions; common duct bile, gall bladder bile and biliary ducts bile. Each possesses distinctive qualities and diagnostic possibilities. The bile, removed is subjected to intensive study, chemically, microscopically and bacteriologically. A diagnosis is then made by correlating all factors: anamnesis, physical examination, the gastro-duodeno-biliary findings, the x-ray and all supplementary laboratory investigations. *It is to my mind the first and so far the only method of really studying the biliary tract.* Recently more light has been thrown upon liver functioning by a fractional study of biliary secretion by the use of phenoltetrachlorphthallein (6) but my experience in this line is so slight I cannot speak authoritively.

In the very limited time at my disposal I will aim to only record some of my own observations based on more than fifteen hundred single drainages.

(1) *Cases presenting no evidence of distinctive gall bladder disease.* These cases are many. The infection and disturbance of the gall bladder has been found because of the fact that in our diagnostic clinic, examination of the biliary tract is now a routine procedure. I am of the belief that these cases, with complicating infected gall bladders, present brilliant therapeutic possibilities as they are the so-called "early cases." In my particular field of internal medicine and neurology, many cases seen had tried many measures and many doctors, whose failure to relieve was possibly due to an unrecognized and unreached infection in this deep seated viscus. Another factor of great importance in such cases, in addition to the drainage that is instituted for the local relief of the infection, is the correction of functional states outside

of the hepatic tract, the use of physical therapeutics and other hospital measures. The physio-therapeutic treatment of such cases will be reserved for another communication. (7) These cases of mild low grade chronic infection, with practically little or no distinctive gall bladder symptoms, but often many gastric, intestinal and nervous symptoms are under proper regimen, close supervision and restriction, with proper diet, the use of hydrotherapy, mechano-therapy and electro-therapy, combined with drainage of the biliary tract, restored to a state of efficiency and usefulness to which they have long been a stranger. Headaches, myalgias, fibrositis, neuritis, so-called neurasthenia, neuroses, adynamia, neurotic gastro-intestinal states, chronic colonic infection, are all benefited by the relief of this infection.

(2) *The relation of colonic infection to biliary drainage*: In my particular line of work, I see many chronically sick individuals, and infection of the bilary tract is very common. It is rare, very rare, to find an infected gall bladder and not find the colon seriously involved with the same infection. Deaver and Ashburst (8) call attention to the rarety of gall bladder infection by continuity from the duodenum and recall the fact that the sphincter of the ampulla of Vater will prevent the entrance of water even under 600 m. m. water pressure. Another factor preventing an ascending infection is the outward flow and the mechanical washing out of the duct by the bile itself. The normal duodenum when food free is practically sterile. In an inflamed, eroded colon, becteria penetrates to the deeper layers of the intestine where according to Adami, the leucocytes carry the bacteria to the lymphatic radicles and the radicles of the portal vein, thence to the liver, which normally destroys many of these germs. But bile is a splendid medium for the growth of bacteria. If it should stagnate it becomes a more favorable culture media, and as it is secreted under low pressure it tends normally to get slower and slower, hence more subject to infection. Once infected the so-called catarrhal process spreads to the common duct, the ampulla of Vater and to the duodenum, with a subsequent or secondary catarrh of these structures, a narrowing of the ducts lumen, making it still more difficult for the already thickened bile to pass through the now thickened and mechanically obstructed common duct. Another factor must be borne in mind. If the hepatic structures themselves are diseased from any cause (alcohol, chronic infection, syphilis, etc.) they fail to destroy the bacteria and these are excreted in the bile, escape into the gall bladder, or duodenum, not only infecting the structures *en route*, but again subserving the purpose for reinfection below. Once the tract is infected, the resulting conditions depend upon a number of factors, needless to mention here, as I merely wish to call attention to a fact seemingly never mentioned or apparently studied in connection with the drainage of the biliary tract. It does not take the deductive logic of a medical Sherlock Holmes to grasp here a ready explanation for some cases of bilary infection that do not yield to drainage. I am now, and have been for some time, studying the intestinal flora with view to ascertaining means of specially combatting this form of reinfection. It is really astounding in these cases how often we run across chronic cecal and colonic stasis; how common is spasticity especially distal to Cannons Valve (middle transverse colon); colitis especially of the descending and pelvic colons, which latter can be confirmed by ocular inspection. Less frequently ileal stasis occurs. The radiographic examination is more important of the visci below the liver and gall bladder than of this region itself. It takes a marvelous *resistentia naturae* to overcome such a condition and prevent gall bladder infection, in fact, the presence of the lower intestinal infection is *primia facie* evidence of such a failure.

(3) *Conditions observed during and after drainage*: Some cases do not seem to be at all affected by the use of the tube. Outside of the minor discomfort of "passing the bucket" they drain, are seemingly benefited at once, feel no weakness or discomfort. There are others who are very tired and feel listless for several hours afterward. These are benefited by very hot broth in small amounts (oz. 4) and absence from food until the evening meal. There are cases who are hungry as soon as they have the tube removed. They are apt to be large, heavy, stout people. They occasionally vomit what they eat. I am coming more and more to the conclusion that but little food should be taken, and that liquid, for several hours after drainage. Those whose biles are badly infected, who are already toxic, may feel badly for twenty-four hours. They are tired, listless, more or less nervous, have a dull, heavy headache, and unless properly medicated have a sleepless night. I have had several cases pass large quantities of bile per anus during a drainage, often with strings of biled stained mucus, and accompanied with considerable griping. Arthritic, myositic, fibrostic and neurotic aches and pains are extremely common, due in my judgment to the absorbtion of toxic material during or after drainage. These are the cases that should be given enough of Jutte's solution to insure a

clean tract, shortly after drainage ceases. A careful non-protein diet for a day, hydrotherapeutic eliminative and stimulant measures soon correct the upset. Every little while a patient suffers headache, usually dull and heavy, during the drainage. Sometimes a typical migraine follows, an etiological toxemia, giving promise of relief from these most disagreeable attacks. In the early drainages patients often complain of a foul, sweetish taste in the mouth, usually accompanied by a heavy coating on the tongue of a yellowish- whitish color. These are but transient, passing phases readily borne for the greater good that follows. Some of these symptoms, following drainage unerringly point to the biliary tract as the source of the provocative agent, and fortify the sufferer for the time being by roseate promises of the future. It is sometimes remarkable how quickly the skin and conjunctivae begin to clear. The yellowish, dirty gray of the latter begins to give way to the pearly white of normalcy. Sometimes the skin clears in patches, why I do not know, and this gives patients a peculiar appearance for a short while. As improvement occurs in the hepatic region, we expect a better myocardium and pulse, a more normal arrangement of the blood pressure and an added sense of strength due to better myocardial and vascular activity. High blood pressure of toxemia comes down; low blood pressure of cardio-myasthenia are brought up. These are not alone due to the drainage, but the drainage plus correction of liver infection and the eliminative and tonic building effects of physio-therapeutic measures.

(4) *Constipation*: A number of physicians have reported marvelous results in constipation from a single or several drainages of the gall bladder, but so far I have as yet no single case where any permanent good resulted from a few drainages. This is as it should be from my view point of the conditions we are now studying in this viscus. Granted an infected gall duct, bladder or biliary ducts above, it stands to reason that in infected bile that passes out from the biliary tract, micro-organisms will be carried downward through the entire hollow viscera of the bowel and infect and re-infect more or less continuously. In a large number of cases which have been exhaustively studied I have as yet to find a case that did not present visible, radiographic, fecal or bacteriologic evidences of colonic mischief. I am now studying the fecal fermentations with a view to their relationship to biliary disturbances and in view of the now accepted sources of gall bladder and other infections as before quoted from Deaver and Ashhurst (8), it becomes to my mind a *sine qua non* to not only drain and relieve the infected area above but to cleanse, medicate and reconstruct the infected area below, and let me here again insist that we must go below the surface. The mere medication and restoration to integrity of the colonic mucous membrane is but one feature or facet with a many sided problem with which we are dealing. It must be borne in mind that the hollow visci are muscular tubes, that the mere presence of bile in the fecal passages is, as a rule, insufficient to stimulate an already weakened musculature, or to overcome a spasticity in portions, the result of a combination of neurologic, muscular membranous and infected conditions. Therefore, it seems to me to be illogical and irrational to expect mere drainage of a few times to overcome a state that is conditioned upon so many and complicated factors. Reason would so dictate and clinical experience supports this cerebric conclusion. A patient with infection in the great glandular, saccular and tubular systems of the liver is sick, not with a purely local lesion to be drained, but sick all over, toxic, and to trust solely to drainage and drainage alone for relief, is to but court failure and disaster. In this connection I consider the free and normal movement of the individual's bowels to be as much a part and parcel of the biliary drainage as that of the gall bladder itself. Taking this broader view of the Lyons method, I am constrained to believe that all these cases need correction of existing pathology in, or adjacent to the bilio-intestinal system. Among these we may mention chronic appendices and diseases of the ano-rectal region. The more I study this method the more do I come to the conclusion that the drainage per se is but one link in a long chain of diagnostico-therapeutic measures intended to bring about a restoration to health of an individual who is sick all over with special infective, muscular, neural and other disturbances in the greatest of all the bodily departments, that of the commissary. And here we may paraphrase the remark of the great Napoleon, that the human body, like an army, moves on its belly. I may say insofar as constipation is concerned, in its relation to biliary drainage, that any relief so obtained comes slowly, *pari passu* with relief above and below of the varying factors upon which the particular case depends.

(5) *Parasites*: While the literature of this subject is growing apace, while physician after physician is "trying out" the method it is extremely rare to see mentioned in articles any reference to the frequent appearance in the secretions withdrawn by the bucket

of various parasites. It has seemed to me that this was rather to be expected by our northern confreres, but in the articles that come from southern brethern, we would rather have expected the mention of the presence of parasitic worms, etc. In this connection it is a rather common experience for us to find the hookworm in the contents of the duodenum or in the biliary secretion, more frequently in the early stage of drainage (bottle A.) We have found both the male and female worms, but no ovae. This is also not an unfrequent occurence in the gastric secretions, removed through the bucket or large stomach tube, but nothing like as frequent as in duodeno-biliary secretion. It must be borne in mind that in Kentucky, an enormous percentage of the population suffer from hookworm (ancylostoma and necator Americana) duodenal, far more than the average physician will admit. We have also found a number of strongyloides intestinalis (fecalis) alone and in combination with Uncinaria Americana (hookworm) but as compared with the frequency with which hookworm is found in the drainage, strongyloides is with us comparitively rare. Of the protozoa, unicellular animal organisms, the amoeba, are comparatively rare. We have seen on a number of occasions the endomoeba histolytica (ameba coli.) These we did not consider pathologic as there was no accompanying dysentary, in spite of their presence in the feces, and which served in our opinion to differentiate these from the true amoeba dysenteriae, which we have never so far observed in our drainages. The flagelletae are not at all uncommon. The one most frequently seen is the colorless, periform trichomonas intestinalis. In a doctor who was operated on twice, first drained and then had his gall bladder removed, without relief of his disease and disorder, we invariably found these until treated for uncinaria by the chenopodium method. In a dental surgeon they survived such a treatment. On one occasion we observed the infusorium. Balantidium coli, (paramoecium coli) which seemed non-pathogenic as the patient was free from diarrhea, in fact, severely constipated. While these observations possess comparatively little practical value, still they serve to show one of the many valuable facts to be obtained by the use of this method.

(6) *Frequency and Control Drainages*: The drainage of the gall ducts, bladder and biliary passages is a scientific procedure, and as my experience grows from day to day, I am more than ever convinced that the absolute personal supervision of this procedure by the physician is imperative. My experience of individual drainages is now between fifteen and eighteen hundred, nearly every one of which I have given personal supervision, all of which I have personally inspected and many of which I have personally examined microscopically, and I have at least come to one very definite conclusion, that the use, continuance, number and time of drainages must be settled by the microscope and by the microscope alone. I have seen thick, foul, secretions free from pus and thin, clear ones full of crystals and pus. There are "pellets" the diagnostic value of which can alone be determined by this method, in fact, the more I see and study the possibilities for error, the more do I reach the conclusion that *laboratory study of each and every biliary drainage is essential*. For the sake of uniformity of record and to save time and facilitate the work, I have originated a blank, which may be of use to others who are really trying to use this very valuable method of Lyons in a way that would dignify it as scientific. There is no certain number of drainages in any given case. Each time the research upon the individual specimen must settle what next to do. Only by such study, often tiresome and time-consuming, can we really place the method soundly on its feet and give the chronic sufferer or invalid the benefit *in maximo*. That it will be abused, practiced in a faddish manner, and finally take its rightful place in the rapidly growing field of medical diagnostic and therapeutic procedures, is probably a trite remark to make. Time will tell.

(7) *Drainage*: I have amply satisfied myself that quite a number of cases that do not drain can be made to do so by the use of certain measures that are rarely thought of and practically never employed. One of the most frequent obstacles met with is pylorospasm. We have used irrigation with very hot water, belladonna, atropin, hypodermically administered and benzyl benzoate, and still failed, the observation being checked by the fluoroscopic screen. Frequently success will be obtained by a very simple procedure. The spinal center presiding over the dilation or relaxation of the pyloris is located at the fifth dorsal vertebra and here pressure on both sides of the spine will oftentimes result in dilation of the sphincter pylori and the rapid entrance of the bucket into the duodenum. This can be verified by an x-ray examination. Dilation of Addi's Muscle, the "sphincter" of the gall duct, at the ampula of Vater, can be brought about by the method of Meltzer, but I am constrained to believe that in many gall bladders the contrary innervation so far as it acts upon the gall bladder is very weak, especially those that are dilated and in which there is stasis. Abrams (9) has called at-

tention to the great value of the visceral reflexes under such circumstances and I am now able from clinical study to confirm what he has to say (7) in refereene to the action of paravertebral pressure and concussion of the spinal segments as related to the gall bladder, liver, pylorus and duodenum. It might not be amiss to review these reflexes and call attention to the fact that concussion of the third dorsal causes contraction of the pylorus; that perivertebral pressure between the third and fourth dorsal vertebrae tilts the stomach into a vertical position and that concussion over the fifth dorsal spine or pressure over the exits of the spinal nerves at the same place with the double radicular pressor dilates the pylorus, usually in a minute. But the measure of election in draining is to first stimulate the biliary duct by using the Meltzer method and then immediately resort to concussion of the first, second and third lumbar spines, this area presiding over and being the center for the reflexes of contraction of intestines, gall bladder, liver and spleen. So far as I am aware, I have been the only one to study the relationship of these reflexes and their mechanical effects upon the sphinctae and visci now under discussion. In another place (7) I have also called attention to the mechanical treatment of the gall bladder and adnexa, by the employment of these reflexes. I again call attention to the great value of the jet douche (7) in stimulating visceral reflexes by its thermic and mechanical stimuli.

The so-called normal or classical position is lying on the right side, based as it is upon anatomical grounds. But physiologically and and clinically we find many cases that do not run true to form, and in these certain "tricks" to aid the clinician may be used with much profit. Personally I do not prefer the right sided position as usually adopted, but a right-side semi-abdominal position which I beleve is better and productive of more rapid and better drainage. I have found some cases to drain better lying on the left side, others partially upon the back and one case that would not drain unless sitting very erect. These variations are not the result of anatomically displaced or pathologically disturbed viscera for a previous opaque meal had been administered, the patient fluoroscoped, the position, shape and character of the stomach, pylorus and duodenum established as well as the absence of obstruction in any form whatever. It is easy to explain why the bucket enters the duodenum from pressure upon the center, for this is a measure well established for inhibiting spinal activity governing the pyloric center of contraction, but an explanation of the other positions is much more difficult. In some I am satisfied the position relaxes the abdominal musculatures, perhaps allows of a less perpendicular position of the duodenum, perhaps lessens peristalsis. We are searching in such a new and untrodden field of medical endeavor that perhaps it were wiser to state facts and leave explanations of facts for a later date. But the human mind filled with scientific curiosity, perhaps visions too often so-called reasons that will not later stand the cold logic of fact. Another fact should be borne in mind. There are cases who seemingly drain but very little or none at all, who will later have a medium or large bilious stool. Here undoubtedly is an opportunity for error, perhaps for a diagnosis of gall bladder obstruction and surgical interference that would not otherwise have been justified. I am absolutely fixed in my opinion that one attempt to drain the biliary adnexa with complete failure to obtain bile does not mean gall bladder obstruction, the presence of stones or a surgical field, but several failures points strongly in that direction, remembering that such a diagnosis must be made from all the facts obtainable and not from the single lopsided one of drainage failure. Another factor always arises when such questions are under consideration, and that is this: there are drainers and drainers. Success in a given instance is the result of the usual factors of ability, knowledge, experience and shall we say intuitive interpretation of what is at fault. I always remember and recall, to my own aid the fact that it is often the man behind and not the gun that kills the game.

CONCLUSIONS.

My time is limited. I should like to tell you of the chemical and observational study of the flow, color, consistency of biles; of the meaning of different kinds of mucus, the presence and diagnostic value of the so-called "pellets;" of the revelations of the microscope, in the study of biliary cystology, of the findings, but I cannot pause, as these together with many other phases must be reserved for other papers. Drainage is a helpful diagnostic and therapeutic measure, but the man that depends upon it alone in the therapy of gall bladder and hepatic diseases and disorders will have his hopes and aspirations shattered upon the rocky reef of failure. I would conclude as follows:

1. The gall duct, gall bladder and biliary tract is much more frequently the seat of infection than is today accepted by the general profession.
2. Toxemia arising from this region produces profound and serious disturbances.

3. The Lyon-Meltzer method offers a new and promising method for the diagnosis and drainage of the biliary tract.

4. Success with the method can only be obtained by a close personal supervision of the method, supplemented by chemical, microscopical and bacteriological investigation and study of each and every drainage.

5. Biliary infection may be present without distinctive focal symptomatology.

6. Biliary and colonic infection are practically always present in the same patient.

7. Drainage may produce or aggravate symptoms already present, showing toxic or infective relationship.

8. Drainage alone is not enough to overcome constipation. This requires special consideration always.

9. Parasites were frequently found in the contents aspirated.

10. Special measures must be adopted to insure drainage, where this is delayed or bile absent; causing the pylorus to open and the bile to flow.

11. Visceral reflexes are valuable "helps" in this method.

12. Treat the patient and not the gall bladder.

SOME OBSERVATIONS ON THE LYON-METZER METHOD OF DIAGNOSIS OF GALL BLADDER AND BILE-DUCT DISEASES.*

By J. T. McClymonds, Lexington.

Any method of investigation giving promise of increasing our knowledge of gall bladder and bile-duct disease must receive our earnest consideration.

While most cases of advanced disease of the upper abdomen give rise to more or less definite symptoms, a careful history taking and physical examination will lead to a correct diagnosis in most instances.

This, unfortunately cannot be said of the beginning stages of disease where symptoms are often so slight as to be overlooked or are referred to other organs. Again, in chronic cases not a few are difficult or impossible to diagnose owing to the involvement of more than one organ, adhesions or reflex disturbances. It is in these obscure cases that every method of clinical and laboratory research must be employed. Then when every means of examination has been tried, there will remain an embarrassing number of cases which must be referred to the surgeon for exploratory operation.

With the discovery of the stomach pump by Kussmaul in the latter part of the past century and the improvement by Faucher, who replaced the rigid tube by one of soft rubber, diseases of the stomach were put on a more scientific basis by the analysis of the gastric fluid.

The possible advantage of a similar procedure in that of duodenal and pancreatic secretions was soon recognized, and many attempts were made to devise a practical method for the recovery of the duodenal fluid. Einhorn, after experiments with the duodenal bucket and duodenal sound, perfected in 1909, a duodenal tube, giving us a clinical method for obtaining the duodenal contents and providing a direct method for the study of duodenal, pancreatic and hepatic conditions.

In April, 1917, Meltzer published an article, "The Disturbance of the Law of Contrary Innervation as a Pathogenetic Factor in the Diseases of the Bile-ducts and the Gall Bladder," in which he brings out the following points:

(1) That the secretion of the bile by the liver is a continuous process.

(2) That the discharge of bile into the duodenum is periodic.

(3) That the gall bladder acts as a reservoir for the storing up of bile during the rest periods.

(4) That the gall bladder bile is much more concentrated than the liver bile owing to the fact that the bile salts and pigments absorbed from the intestines are stored in the gall bladder.

(5) That the storing up of bile in the gall bladder is a physiological process, the concentrated bile being called upon to aid at certain stages in the process of digestion.

(6) That retention of bile beyond the physiological limits may lead to pathological conditions in the gall bladder and biliary system; stasis giving rise to irritation, lowering tissue resistance and paving the way for bacterial invasion with its resulting infection or stone formation.

Metzer further points out that the gall bladder is supplied by muscle fibres and that the terminal portion of the common duct at the Papilla of Vater is surrounded by a more or less complete muscular band, the "Sphincter of Oddi." Applying the law of contrary Innervation, we must conclude that any stimulus causing a contraction of the gall bladder must be accompanied by a simultaneous relaxation of the Sphincter of Oddi, and vice versa. In normal physiological action, the relaxation of Oddi's sphincter and the resultant gall bladder contraction is brought about by the entrance of gastric chyme into duodenum, this being especially active when the chyme is met in peptones or albumosis. As a foot note to his article, he gives the following:

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

"According to the view taken in this paper, some cases of jaundice and biliary colic have their origin in the fact that the sphincter of the common duct is abnormally contracted and does not become relaxed, as it physiologically should, during the contraction of the gall bladder. In experiments with magnesium sulphate I observed that the local application of a 25 per cent solution of that salt upon the mucosa causes a complete local relaxation of the intestinal wall. It does not exert such an effect when the solution is administered by the mouth—that is, when it has to pass through the stomach before it reaches the intestines. The duodenal tube, however, apparently has reached an efficient practical stage. I make, therefore, the suggestion to test in jaundice and biliary colic the local application of a 25 per cent soltio nof $Mg\ SO_4$ by means of the duodenal tube. It may relax the sphincter of the common duct and permit the ejection of the bile and perhaps even the removal of a calculus of moderate size wedged in the duct in front of the Papilla of Vater. Twenty-five cubic centimeters of the solution as a dose for an adult will bring no harm. For babies the does should not exceed 4 c. c. The procedure could be developed into a practical useful method."

Shortly following the publication of Meltzer's paper, Lyon took up the work from a clinical standpoint, and it is largely through his writings that the method has been brought into prominence. Lyon's technique has been most carefully worked out on a large number of cases, and, while some of the procedures may be open to criticism and a few minor changes made, it should stand as a model for clinical observers. The method as outlined by Lyon is as follows:

The patient should be examined on a 12-hour fasting stomach; teeth thoroughly brushed and mouth and throat cleansed, first with potassium permanganate, one grain to the ounce, then with a mild solution of zinc chloride. The duodenal tube, kept over night in 2 per cent lysol and freshly boiled, is introduced into the stomach and the stomach contents aspirated for examination. The stomach is washed with water to "crystal clearness," using 250 cc. of water at each douche, then astringed with mild zinc chloride solution and again washed to clearness. Following this the stomach is sterilized with potassium permanganate, solution 1 to 10,000, and again washed, a small amount of the final wesh water being left to aid gastric peristalsis. The patient is then placed on the right side in a reclining position (Sim's position) and 20 cm more of the tube swallowed very slowly, (about twenty minutes should be taken to accomplish this,) thus giving a total length of tube from the teeth of from 75 to 80 cm. When the bulb has passed into the duodenum, the duodenal contents are aspirated into a sterile bottle for examination. The duodenum is now lavaged with 75 cc. of a 33 per cent solution of $MgSO_4$, this being promptly withdrawn.

In cases following the normal course, the clear $MgSO_4$ solution in from 1 to 6 minutes will become bile tinged, rapidly changing to the deeper color of bile. After a relatively small amount of this has passed, the bile promptly changes to a deeper color, golden yellow, brown or green, and is much more viscid and thick. After varying amounts of this have passed, the color again changes to a lighter shade, usually lemon yellow, and is much less viscid. With careful watching, these various biles can be separated into sterile bottles for study. Lyon has designated them as A. B. and C. bile:

A. bile being the bile from the common duct with the addition of small amounts from the cystic and biliary ducts:

B. bile being the bile from the gall bladder:

C. bile, the bile from the liver and hepatic ducts.

It is from the study of these various biles, their amount, rate manner of flow, (continuous or interrupted) the gross appearance, chemical, cystological and bacteriological findings that our deductions are made.

Considering first the flow and segregation of bile: Assuming that the tube has not kinked and that the bulb of the duodenal tube has passed the pyloric sphincter, a failure to obtain bile means a complete occlusion of the common duct by inflammation, edema, stone, new growth, or external pressure as from enlarged glands, cancer of the head of the pancreas, etc. Even when the bulb of the tube has been passed too far and rests in the jejunum, the $MgSO_4$ solution not bathing the duodenum, bile or bile stained fluids can be recovered if our tube is not withdrawn too soon.

We frequently find a considerable quantity of bile in the fasting stomach due to the regurgitation of the duodenal contents through a relaxed pyloric sphincter, or, as has been frequently observed in our cases, the stimulation of the bulb in the duodenum has caused a very free flow of bile, often amounting to 50 c.c. or more, before the introduction of the $MgSo_4$, so in many cases the bile first recovered after stimulation is C. bile, but is often incorrectly labeled A. bile.

B. of gall-bladder bile: The failure to cause the emptying of the gall-bladder may be due to numerous factors; faulty or insufficient stimulation, as the passage through from the stomach into the duodenum of considerable quantities of gastric fluid diluting our $MgSo_4$, or the bulb may have passed the duodenum into the jejenum. When the duodenum is properly douched with the concentrated $MgSO_4$ solution (this can be determined by the free flow of liver bile), failure to obtain gall-bladder bile means definite pathology, and with the exception of external pressure from glands or growths, means disease of the gall-bladder or cystic duct. This may be obstruction due to inflammation of the mucosa and swelling, plugging with mucus, the impaction of stone, stricture, kinks, malignant growths, the gall-bladder may be atrophied, entirely filled with stones or sand, the contents too viscid to flow, or the musculature too weak to bring about the expulsion of its contents. The amount and method of flow of B bile is of great significance: rapid and complete emptying of the gall-bladder indicating a normal musculature and enervation, while a slow or interrupted flow (at times requiring repeated stimulation) speaks for a weak musculature, constriction or possibly an incomplete stenosis of the duct. An amount exceeding 75 c.c. especially if the bile is off color and highly viscid, is abnormal, showing stasis and dilatation.

C. or liver bile is always secured when any bile is found, and, as the liver has a constant secretion, will continue to flow as long as the sphincter of Oddi remains relaxed.

As soon as the A. B. and C. bile have been secured and segregated in sterile bottles, they should be sent to the laboratory for immediate examination, a very short delay being sufficient to cause marked changes in color, viscosity and turbidity due to the admixture of HCl of the gastric juice, the pancreatic fluid, or precipitation of bile salts. Any delay will cause changes in the appearance of the cells or even their disintegration. The time element is of especial importance in the bacteriological examination, as our more pathogenic organisms are often crowded out by more rapidly growing bacteria, especially the colon group, a contamination being all but impossible to avoid.

In summing up the evidence of disease as indicated by the Meltzer-Lyon test, we must constantly bear in mind possible sources of error. Those of us who have lived in the days of antiseptic surgery and recall our futile attempts at sterilizing our hands—the scrubbing, the carbolic and lysol solution, bichloride, potassium permanganate and alcohol, must be skeptical in regard to the possibility of sterilizing the stomach. In the preparation for the test the greatest cleanliness should be employed, the teeth brushed, the mouth thoroughly washed with mild antiseptic solution, the stomach washed to clearness with sterile water, douching with solution of liquid antisepticus, potassium permanganate or hypochlorite, if you wish, and again washing with sterile water; but an absolute sterilization is out of the question. The preliminary cleansing is much more difficult and the danger of contamination greater when muco-purulent diseases of the stomach, duodenum, esophagus, lungs, or upper air passages are present, or when gastric or duodenal ulcer exists, and, in our conclusions, these factors must be considered.

Under what conditions are we justified in diagnosing a diseased condition of the gall-bladder or bile ducts from a cytological and bacteriological examination of the segregated biles. Let us take A bile—when microscopical examination shows numerous pus cells and bacteria; when smears and plate cultures show many bacteria and colonies, when B and C bile are free from such findings, we can reasonably assume that the factor is in the common duct, choledochitis. When the findings in A and C bile are negative and B bile is off color and loaded with pus and bacteria, we can be certain of an infected ball-bladder, cholecystitis. With a preponderance of cells and bacteria in C bile, and this we rarely find, we must consider infection in the hepatic ducts. Very frequently we find evidence of infection in all of the biles. When one of them, however, shows a much greater number of bacteria and cells, it may form a clue to the primary focus of disease.

In the examination of our cases, we have followed the method of Lyon with the exception of the zinc chloride astringing of the stomach (this we consider of doubtful value); and a slight modification in the method of douching the duodenum with the 33% $MgSo_4$ solution. We employ 25 c.c. instead of the 75 c.c. as recommended by Lyon, allowing it to flow very gently, by gravity, then, as the last few drops are leaving the reservoir, lowering this and withdrawing as much as possible by siphonage, the same solution is again run in and this procedure repeated until the fluid becomes bile tinged, attaching a sterile bottle when deeper colored bile appears. By this method we believe that we obtain sufficient stimulation and can hold in reserve 50 c.c. of $MgSo_4$ solution for additional stimulation if required.

We have also found it of advantage to flouroscope our patients a few days previous to using the duodenal drainage, noting the size and position of the stomach, the condition of the musculature, tonic or atonic, the activity or peristalsis, the presence or absence of spasm at the plyorus, and the rapidity of emptying of our opaque meal. By doing this we gain valuable data as to the probable time required for the passage of the bulb through the stomach. In cases of atony, we must be prepared for a considerable delay. When a spastic condition with spasm of the pylorus is present, this can often be relieved by the installation of tincture of belladonna or benzyl benzoate, or when due to an excess of HCL in the stomach (this should always be determined from the examination of the gastric residue,) this can be overcome by douching with soda solution. We also can determine the approximate length of tube required to reach the proper position in the duodenum. This can be more accurately ascertained by measuring the distance, under the screen, with a flexible metal sound.

In the first of our cases we employed the method of aspiration to obtain the duodenal contents. This we soon abandoned in favor of siphonage, suction only being employed to start the flow, free the tube from mucous plugs or aid the flow of very viscid bile. A fall of 18 to 20 inches is quite sufficient. This method enables us to make more accurate segregation of the A. B. and C. biles, as the flow is under constant observation.

The time required for carrying out the test is variable, ranging from one and one-half hours to seven hours—the delay being due to the slow passage of the bulb from the stomach into the duodenum. In some cases, the bulb did not pass at the first trial, but passed at subsequent attempts. In only two cases was complete failure met, due to nausea and repeated ejection of the bulb from the stomach.

We have much to learn in regard to the amount and kind of stimuli required to cause contraction and emptying of the gall bladder. We know that such anti-spasmodics as benzyl benzoate or tincture of belladonna will cause a relaxation of the Sphincter of Oddi, but without the corresponding contraction and emptying of the bladder, we have seen that the mechanical stimulation of the bulb of the duodenal tube will cause a free flow of bile in many cases. We must look, therefore, with doubt on any easy method or short cut to the carrying out of the Meltzer-Lyon test. As for example, introducing the tube the night before and aspirating the duodenal contents at intervals the following morning. Data obtained by such means is liable to much error. Likewise a method of giving a gastric test meal before introducing the duodenal tube is open to the criticism that the passage of the gastric chyme through the duodenum is liable to bring about a physiological flow of bile with gall bladder contraction. It would seem almost unnecessary to warn against attempting the test on a patient who has eaten a more or less heavy meal some few hours before, as the gall bladder, under physiological condition, might be found empty or incompletely filled. Accurate results can only be obtained from gall bladder and duct drainage following a prolonged rest period, and we believe that our best results are reached by stimulating the duodenum as soon as possible after the bulb has passed the pyloric sphincter.

During the past year we have used the Meltzer-Lyon method in the examination and treatment of forty-two cases, and on these, 70 drainages have been made. We have not employed the method as a routine means of examination, but only in those cases presenting more or less definite symptoms of gall bladder of bile duct disease. In a number of these cases, direct or confirmatory evidence of disease has been found. Only three cases in our series have come to operation. In two of these, with jaundice, no bile could be obtained after repeated duodenal stimulation. In these cases the common duct was found completely blocked by stone.

One case, with a history of gastric disturbance and acute indigestion, followed at times by slight jaundice, showed a free flow of liver bile, but no evidence of gall bladder bile. In this case the cystic duct was occluded by an impacted stone. We do not wish to infer that in these cases the diagnosis was made solely by drainage evidence, but to show that the operative findings conformed to the conclusions drawn from drainage tests.

In a number of cases were found marked changes in the gall bladder bile: some being off-colored, more viscid, turbid, flocculent or containing numerous pus cells or bacteria. In six of this group the amount of gall bladder bile was in excess of 75 cc., one case exceeding 150 cc.

It is in these cases of gall bladder stasis with atony, dilation or infection that the method of Meltzer-Lyon will prove invaluable, as by its use we are able to study the beginning stages of gall bladder and duct disease, often arriving at a diagnosis much sooner than would be possible through other methods of examination.

In the treatment of gall bladder and biliary stasis, with or without infection, it has given far better results—we might add, the only marked results outside of surgery—in the treatment of this class of cases.

We have seen very great improvement in most of the cases treated by drainage. Gastric symptoms and headache have been relieved. There has been an increase in weight, with a corresponding improvement in general health and nervous symptoms. In several cases, there has been most pronounced improvement in the skin, the sallow yellow or brown discoloration giving place to a healthy tinge.

As many of these cases are profoundly neurotic, we must be careful in attributing improvement, especially subjunctive symptoms, to drainage, as the psychologic effect of the treatment is very great.

When we come to the diagnosis of common duct diseases, the problem seems to us much more complicated, as in these cases we so often fail to recover bile that we can positively recognize as that stored in the common duct. As the duct has emptied before the duodenum can be stimulated, and no doubt in some cases before the bulb has passed the pyloric sphincter as shown by the regurgitation of bile into the stomach. Normally the amount of bile is relatively small. It is the first bile to pass and we think is much more liable to contamination from the secretions of the duodenum and upper digestive tract, making the interpretation of cystological and bacteriological findings on which the diagnosis depends, much more difficult.

We have had but one case belonging to this type. This case being of unusual interest from the standpoint of treatment. A woman of 42 began with gall-bladder colic at 32. Three years later the gall-bladder was drained and several large stones removed. Attacks returned two weeks after leaving the hospital and continued for five years, with the remission of about one year. The gall-bladder was then removed and adhesion to duodenum and stomach freed. Attacks came on one month following this operation increasing in frequency and severity. Finally coming on every two or three days and at times having two attacks the same day. Some relief was obtained by the use of large doses of aspirin and at times morphine.

The first non-surgical drainage was made December 6, 1920, and repeated on the 9th, 15th and 22nd of that month. One attack of moderate severity occurred after the first drainage, a very light one following the second. After the third drainage, attacks ceased and she felt entirely relieved. A recent report from the patient showed continued improvement, only a few mild attacks having occurred in seven months.

Our experience has been too limited to warrant the formation of very definite conclusions as to the ultimate value of the Meltzer-Lyon test. But we believe that the method will prove of the greatest aid in the clearing up of many obscure abdominal conditions, enabling us to make a diagnosis at a much earlier stage in the pathological process, as well as giving us the best method of treatment in many gall-bladder and hepatic diseases.

DISCUSSION

Charles G. Lucas, Louisville: There is no condition we are called upon to treat where we can do as little from a medical standpoint as in diseases of the gall bladder, so that when Lyon brought forth his method it is easy to understand why it created such enthusiasm.

Dr. Pope and Dr. McClymonds have covered the ground thoroughly, and as I have had a little practical experience I will speak from that standpoint.

Lyon called our attention two years ago to an additional means of diagnosis of great value in obscure diseased conditions of the bilary tract, and it opened up two great possibilities from a therapeutic standpoint. As each man does this work he develops his own technic.

I had the advantage of spending several days with Dr. Lyon a year ago, and after I came back I followed his method. He used 75 mils of 25 per cent solution of sulphate of magnesium. I used 30 mils, and in 33 1-3 per cent solution, and I found I could get as good results by following McClymonds of 25.

As to the question of kinking and knotting, I could only see one knot in it, but these cases will have knots is my own experience. While Dr. Pope will show two knots, I have had nine cases with one knot, and in six of these cases the knot was far back of the tube, but we were able to drain the case with little or no trouble. In three cases we were unable to drain at all. I find very little or no trouble in introducing the tube for the reason I think that these duodenal tubes after repeated sterilization become very soft, and after a few seances, possibly 10 or 12, they are troublesome to introduce. For that reason, I buy the tubes by the dozen and use them as I would any tube. I never introduce the tube with the patient sitting up. I introduce it with the patient in the recumbent position after the mouth is thoroughly washed and the patient stretched out on a sofa. Then the tube can be introduced with practically no trouble. I invariably turn my patient on the right side. After the bile begins to flow, to relieve soreness I let them turn on the back. But that is something which appeals to each one of us. Formerly, I put blocks of wood under the sofa or under the foot of the sofa. In some cases I put a large heavy pillow on the hip; I turn them on the right side and usually have very little trouble.

I have had one case of pylorospasm. In one case I failed to get any bile at all. After that patient left I remembered that a year or two before I saw the case I saw some plates that were taken showing a marked gastroptosis. She was put on increasing doses of tincture of belladonna, and when she came back a week later a tube was introduced and when it reached 45 inches bile began to flow and she got a great deal of benefit from the drainage. I have used the tube because of limited time in my office work more for treatment than for diagnosis. I believe the tubes can only be used diagnostically in large clinics, because every case should be carefully watched.

I agree with Dr. Pope that you have got to look after these cases yourself. While the assistant sees the case, I look at the case every little while to see how it is getting along.

I have had very good results in the treatment of acute jaundice. Yesterday I drained a case for the first time, the patient having an acute jaundice of a week's duration. If we drain these cases early we can prevent a great deal of damage to the gall bladder, because damage is done by the bilary stasis which ensues and the changes that take place in the bile.

C. W. Dowden, Louisville: Every member of this Association will do well to go over carefully these two articles that have just been presented. They represent all that is new and worth while concerning the subject, and the references attached will give you the principals and laws which underly this procedure. This is very necessary because we all see gall bladder and liver diseases and it is just as essential that we know when to advise against this procedure as it is to know when to recommend it. Any procedure which offers a compromise between the usual medical treatment and surgery always has been and always will be fraught with more or less danger to the patient. Not from the danger in the application of the procedure itself, but because it will frequently be substituted in many instances for the necessary treatment. It will very often be wrongly applied and wrongly interpreted and will be seized upon by many faddists whose chief object is to impress the patient rather than to cure his disease. It will furthermore open a discussion between the surgeon and medical man that will take years to settle and to properly catalog as to its real value.

Gall bladder drainage can never replace surgery where there are gall stones, new growths, acute or chronic empyema or gangrenous cholecystitis but it should in most cases be used as an adjuvant following the operation to clear up the remaining infection. In practically all other cases it can and should be adopted as a very valuable and necessary part of the treatment after the diagnosis is once made. It has been our privilege in several instances to investigate by this method cases in which surgical drainage had been done and we found culturally abundant evidence of remaining infection. Certainly in such conditions the non-surgical method would have been more effective since the drainage can be done just as thoroughly and as often as necessary with the added advantage of having a check on the infection. On the other hand, we have had patients who have had their gall bladder drained repeatedly when gall stones were present, thus misapplying the procedure where surgery was distinctly indicated. We have seen a few patients who have had drainage over long periods of time where the proper bacteriological and cystological methods failed to reveal any evidence of disease whatever. This latter constitutes a real objection to the procedure from the therapeutic standpoint.

The first duodenal tap should always be done diagnostically, studying the contents of the duodenum, bile ducts, gall bladder, and liver not only macroscopically but microscopically, cytologically and culturally. If actual disease is demonstrated the procedure or drainage is simple enough to permit of its application by any physician or even by the patient himself in his own home. Later on a further diagnostic drainage should be done to determine what progress has been made or if cure has been accomplished.

If Meltzer's law of Contrary Enervation is correct then any surgical procedure which interferes with the operation of this principal should be thoroughly considered before it is adopted. As stated before, stones, new growths, empyema, etc., should not deter him. If surgical drainage does not permanently remove infection then it had apparently best be replaced by non-surgical drainage. That bete noir of surgery, namely adhesions, can in the absence of stones be handled more successfully by non-surgical drainage than by surgical drainage.

In fact it would seem at this time that surgical treatment of cholecystitis (without stones) is very likely to be replaced largely by non-surgical drainage of the gall bladder. It would furthermore seem that in case of gall stones that cholycystotomy would once more assume the position of choice rather than cholycystecomy since the accompanying infection can ordinarily be controlled by non-surgical drainage, and removal of the gall bladder destroys a necessary physiological function which means much to the future welfare of the patient.

Modern medicine is daily teaching us to retain function wherever possible. That procedure which will remove disease without destroying function should certain have the preference over the procedure which destroys function in removing the disease.

We cannot refrain at this point from mentioning a procedure we are trying out which has for its purpose the determining of liver function. It is applied the same as the 'phthalein test for kidney function. One cc. of phenoltetrachlorphthalein is injected and the time of appearance in the bile recovered from the duodenal tube is noted and the amount recovered in two hours is estimated by colorimetric methods. It gives promise so far of being a very valuable aid in determining liver function. Our work with our deductions is to be presented in a paper read before the Southern Medical Association at Hot Springs in November.

Virgil E. Simpson, Louisville: The essayists have very carefully studied the literature and have so intelligently and logically presented the material which they have gleaned, that there is very little in the way of discussion except with reference to personal experience and to personal equations.

There have been but few procedures in medicine, within my experience at least, that have occupied as unique a position as has this particular procedure of non-surgical drainage of the gall bladder. Occasionally we meet an individual who asks us the question, do you really drain the gall bladder. Occasionally we meet individuals who do not believe that such drainage, after it has been accomplished, does any material good from a therapeutic standpoint to the patient. But these conscientious objectors are not often met, and there seems to have been an unusual unanimity of opinion both among Internists as well as in the surgical field with regard to the main facts at issue concerning non-surgical drainage of the gall bladder.

I wish to speak with reference to phases of the procedure which have to do with the practical operation. The more scientific aspect of the subject has been sufficiently covered. The question of how to drain the gall bladder is one of some importance, and, as has been said by some of the gentlemen, it has actually resolved itself somewhat into each individual working out his own technic; yet, after all, there are fundamental basic principals which underly the technic which, if neglected, materially interfere with the successful outcome.

Delay or failure of passage of the tube into the Duodenum occurs sufficiently often in a given series of cases to compel attention to suggestions looking toward facilitation of its passage. Posture has received considerable attention for this reason. I usually introduce the tube with the patient sitting, in fact, this is our routine practice with all office cases during the past year. The inconvenience to the patient is no more than when prone and the ease of manipulation of the tube, of basins if retching be succeded by vomiting, together with the added possible advantage of gravity for the bulb, have influenced me in adopting the sitting posture as a routine. After the bulb reaches the stomach the line of least resistance should still be followed and the patient is then instructed to not only lie down but to turn on the right side. Many of our patients have preferred sitting or even walking about and I am not sure but that the period of "watchful waiting" is no longer with this group than with those who assume recumbancy. A number have enjoyed a cigarette or cigar while the tube is passing through and I am not adverse to expressing the opinion that smoking expedites the tubes's journey in the habitual smokers. Lavaging the stomach with hot water alternating with cold even when tubing after fasting facilitates peristalsis. The introduction of a solution of Strychnine through the tube into the stomach after thorough lavage has been found to be helpful in some cases. Mechanical vibration of the upper Dorsal spinal nerves has been resorted to in some very slow cases and occasionally, I have thought, with benefit. In a few cases where I failed to get through the stomach after prolonged effort I have resorted to the simple procedure of having the patient swallow several feet of silk thread in a capsule attaching the free end of the ear. This should be swallowed the evening previous to the day of drainage to allow time enough for the thread to enter the duodenum. The fluoroscope may be very helpful in securing passage of the bulb. My experience has been very limited with it however. One should use drugs with much discretion as aids in passage. In pylorospasm the action of some of the belladonna group is helpful beyond doubt; in proper dosage relaxation of the sphincter-like muscles of the pylorus can be secured without material inhibition of peristalsis of the remaining musculature. But such agents as benzyl-benzoate affect the entire gastric and intestinal musculature and a lower level of peristalsis results which merely adds to the delay. Opium and its deriviatives should never be used. In every case where opium has been necessary to relieve pain I found an attempt to drain within 24 hours thereafter to be either a failure or a very tardy passage.

A second detail of importance is having an empty stomach to start with. I sometimes find it advantageous as a time saver to give a test meal in those cases where gastric analysis is desired as well; the meal can be removed, the stomach lavaged and gall bladder drainage done in one sitting. But speaking generally, one will find it distinctly helpful to have a fasting stomach—in other words, a light supper and no breakfast—the morning of drainage. This is true for several reasons. In the first place the usual, food products will tend to clog the openings in the bulb or become lodged in the lumen of the tube, making the emptying of the duodenal contents and drainage, subsequently, of the gall bladder contents an interrupted procedure at least. Another objection to eating prior to intubation is that when food is introduced into the stomach the processes of digestion are established; this implies the emptying of the stomach contents from time to time into the duodenum which in turn, under ordinary conditions means an emptying of part of the contents of the gall bladder. Hence it is impossible to secure the duct bile for study. In addition, unless there be complete mechanical obstruction some of the gall bladder bile is thus lost to the food thereby defeating one of the aims in drainage, viz., the determination within a reasonable degree of certainty the capacity of this particular gall bladder. And finally, food in the duodenum at the time of drainage makes a bacteriological study of the drainage products of little value. Under the most favorable conditions and with careful technique the value of bacteriological study of the drainage bile is justly under question, therefore, how much less valuable must such a study be when the bile is admixed with food.

Third, when is the tube in the duodenum? This is usually fairly easily determined. The duodenal juice differs quite a little from stomach contents; its grayish color, the flocculent material. The reaction will all help in the answer. The appearance of bile stained with fluid must not be considered unequivocal evidence that the tube has passed through the stomach into the duodenum. The introduction of the tube into the stomach will produce sufficient nausea and reversal of peristalsis with relaxation of the pylorus to permit a rather free passage of bile stained fluid from the duodenum into the stomach. This will appear in the siphonage and may give rise to the conclusion that the tube is in the doudenum.

Fourth, the time interval between the introduction of the Magnesium Sulphate solution and the starting of drainage is of some importance. At least ten minutes should intervene. The introduction of a second injection of the Magnesium solution is occasionally helpful but the necessary for it is not frequent in my experience.

Finally, the question is sometimes asked why not remove the tube after the Magnesium solution is "planted," thus relieving the patient of the inconvenience of the tube for one or two hours after drainage has been begun. A casual study will convince one of the value of removal by the tube rather than allowing it to drain into the duodenum. The discharge of a large quantity of infected bile into the bowel and its passage into the rectum permits of a time sufficient for considerable absorption. Even uninfected bile unattached to food in such quantity will cause some disturbance. As a therapeutic procedure it might be permissible. If the drainage is for diagnostic purposes removal by the tube is a necessity.

J. Garland Sherrill, Louisville: I am delighted to have heard this symposium, and I would like to know how to play upon this vertebra and that vertebra and get a profuse flow of bile at will.

Why do you tube patients? Gentlemen, I may say this from a surgical aspect, we are always delighted when you can prevent a patient from getting into a condition that he needs surgery, and if you can relieve gall bladder infection by the use of the tube, I am for it. If you can help to diagnose early gall-stone disease or even infections of the gall bladder, we want your help. There is a field for this procedure, and I think that field will be recognized more and more as time goes on. The practitioner, of course, must familiarize himself with the technic or develop his own technic in the use of the tube. I believe any great number of people will try the tube for a considerable time before they consent to operative interference, and I believe we all agree that when a patient has a septic, gaugrenous gall bladder, intubation of this type will not do any good; but that case is surgical; also when a stricture of the gall duct or of the cystic duct has developed, tubing will not do any great amount of good. But it is in the early case where we have a simple congestion or swelling of the mucous membrane which plugs the outlet, where the bile does not flow freely into the intestine, that tubing is useful.

I wish to emphasize the statement made by Dr. Dowden. Some years ago in a discussion before the Southern Medical Association, I claimed that those doing most cholecystectomies would sooner or later be doing cholecystomy rather than cholecystectomy for infections of the gall bladder and bile passages. I based my opinion on the fact that after the gall bladder has been removed, you have only the duct left as a retention organ, and I have seen the duct with stone plugging the opening in the duodenum become greatly distended. What do you do in a condition of that kind? We have here a method that will help us out, when you have infection of the papilla of Vater. There is nothing which poisons the system quicker than bile and its constituents passing out through the kidney, breaking down the kidney, and the patient goes to pieces in a short time. The surgeons practically do not hear of these cases, but practitioners will hear of them. If this method will enable us to carry along old cases that have been operated on and those that are not operated where gall stones are not present, we have done a great deal for them.

Curran Pope, Louisville (closing on his part): In listening to this discussion I have felt that I have sat at the feet of Gamaliel, and I have learned much, and I think the sum and substance of the discussion shows that while there is much of interest accomplished, there is still much to learn, and that makes it very interesting to me.

I value this method so much that I have on three occasions gone to Philadelphia in order that I might personally work with Dr. Lyon to perfect myself in the technic and in the work. I am satisfied that one of the biggest advantages that Lyon gets out of his zinc washing of the stomach is the astringent effect of the zinc that squeezes out a good many of the plugs, and these plugs often show colonization of bacteria, and in that way we can say as to whether we have an infective process in the stomach or not.

With regard to siphonage, personally I have not been very successful with siphonage, and I much prefer the vacuum method to any other.

It is not often I have to differ with my friend, Dr. Dowden, but I am just this kind of an American and this kind of liberty-loving individual, that if I can ever start a discussion between medical men and surgeons, I always hope that out of it will be developed that freedom of speech which is American and that discussion will always tend to make us better doctors and better surgeons. I do not think this is a question between doctors and surgeons. It is a question of plain, ordinary, everyday honesty. If you get a case that has got a gall-stone already formed and you reasonably believe it and know it, you should have it removed by the surgeon if the patient will permit its removal. As I said in my paper there are cases that present no or few symptoms, that have no gall-stones, that have no or slight mechanical conditions, and it is these that the tube is going to help. I do not think any reasonable man would argue for a moment that we are going to do mechanical work with this method. You will find some doctors who have been operated on who will come in and say that they want their gall bladders drained if it is humanly possible. What are you going to say to them? If you have a doctor to deal with tell him the same truth you would a patient. If he has a gall-stone, tell him to go to a surgeon. In dealing with these cases it is mixing brains with the biliary pigments, making your diagnosis, and after telling the patient what it is and truthfully advising him on the solid foundation of honesty. That is the whole thing as I see it in a nutshell.

I have never tried the method of using a string like Einhorn does; I am going to try it.

I showed that picture with the two knots with considerable pride and with the sole and perhaps malicious intent to give my friend Lucas a chance to tell how many knots he had seen tied. (Laughter.)

We have only had three, and now he has gotten the multiple of it. I congratulate him. In the meantime, I must say with all justice to him, I have had five or six cases of single one myself.

J. T. McClymonds, Lexington, (closing): I feel out of my class in that I have never had a knot tied in my tube, but I am living in the hope that I will yet have such a case.

In a recent number of the New York Medical Journal, Einhorn states that the change of color seen in the bile from duodenal drainage is not due to its source from the gall bladder or hepatic duct but that it is caused from the reaction of the $MgSo_4$ solution on the bile. He also states that these color changes come on gradually and are not sharply defined. This observation does not conform to our findings as in most cases the color change is very sharp.

In a case recently referred to me by Dr. Cowan of Danville, the passage of the bulb into the duodenum was followed by a flow of yellow bile which changed sharply to dark brownish green, this again changing to yellow. These color changes were seen before stimulation with the $Mg\ SO_4$ solution. Similar color changes occurred.

The internist does not expect to treat successfully surgical conditions of the gall bladder or biliary dusts, but he can by drainage tests make their diagnosis much more certain. In cases of gall bladder or biliary stasis due to atony or inflammation of the mucosa, drainage should be the method of choice. I have treated by drainage three cases of biliary stasis following the removal of the gall bladder. Stimulation caused a free flow of liver bile. The contraction of the muscles of the gall bladder exert but slight pressure. About the only time this is greatly increased is during the act of vomiting due to contraction of the abdominal wall.

I believe that in the employment of duodenal drainage we are on the right track.

Luetin.—Ward calls attention to the findings of 27 per cent positive luetin reactions in 47 syphilitics. In a second series of 200 unselected cases there were 75 per cent corroborative returns. As an indicator of the value of antisyphilitic treatment it has verified the Wassermann test in a high proportion of cases but remained positive in from 10 to 15 per cent. These findings are suggestive that luetin as a measure of the allergic reaction in syphilis has a much higher value both negatively and positively than has been emphasized heretofore.

THE APPLICATION OF BIOLOGIC AGENTS IN THE DIAGNOSIS, PREVENTION AND TREATMENT OF CONTAGIOUS DISEASES.*

By John F. Anderson, New Brunswick, N. J.

When I accepted the invitation to present a paper at the Annual Meeting of the Kentucky Medical Society, I endeavored to select for a subject one that would be at the same time instructive, not without interest, and perhaps bring to some of you some of the newer things in the use of specific agents in preventive medicine.

Students of public health administration have occasionally called attention to the tardiness with which administrative health officials put into practice measures for the control of diseases based upon the result of research, as to their diagnosis, cause, and method of transmission. This applies not only to the control of diseases after they have assumed undue prevalence in a community, but to the prevention of the entrance of diseases into a hitherto non-infected locality. Examples of this delay in the application of laboratory results to practical public health procedures are numerous as shown by the history of the control of yellow fever, malaria, bubonic plague, typhus fever, cholera, diphtheria, and even of typhoid fever, the most studied, and still one of the most prevalent of our endemic infectious diseases. It has been known for at least fifteen years that bubonic plague is primarily a disease of rodents, and only secondarily of man, and that the disease is carried to man by infected fleas. While these facts have been common knowledge even to the laity, they have been practically disregarded by every city in the United States, except sporadically, so far as the putting into effect of measures for the destruction of rats and even of the exclusion of possibly infected rats from places in which bubonic plague is present. Some of our Southern cities in all probability would have avoided the loss of life and the great financial loss to them and their citizens if there had been applied those measures known to be effective in plague prevention. What has happened in those cities may happen to others.

We know that malaria is transmitted by certain mosquitoes and that the reservoir of infection is largely composed of persons without clinical evidences of the disease, yet how many communities in endemic foci of the disease in this country are enforcing scientific anti-malarial measures based upon this knowledge.

We know that honest tuberculin testing of cattle practically insures milk free from tubercle bacilli, and we also know that proper pasteurization of milk saves lives and prevents sickness, yet how few are the localities in which there is enforced adequate tuberculin testing of milk cattle or efficient pasteurization of the milk supply.

Other examples could be cited even more striking in that they show how slow the administrative branch of public health is to apply to disease prevention the measures so patiently worked out by the research workers as regards the control and prevention of disease, not only of the contagious diseases, but of those other large classes of diseases about which we have been learning so much in the last few years. I, of course, refer to the so-called industrial diseases and diseases of nutrition.

There can be no question as to the importance and desirability of research and it should be encouraged and promoted in every way, but if all research was stopped and application was made of our present knowledge that pertains to the prevention of diseases, the death rate would be cut almost in half.

There is no branch of therapeutics more abused than biologic products by reason of the wrong use of its representatives, and none of greater value when intelligently used. They are of particular value because they not only cure people sick of certain diseases, and are therefore specifics, but they may be used for the prevention of disease with the assurance of success.

The first biologic product to be used for the prevention of disease was smallpox vaccine. We cannot even approximate the number of lives saved in the 125 years of its use by the protection it has given individuals vaccinated against smallpox; but in spite of its known value in protecting against smallpox, there are some who even at this time are urging our lawmakers to take this protection from our people.

I need dwell but briefly on the value of vaccine virus or smallpox vaccine in controlling smallpox. The medical history of the world, before general vaccination came into effect, shows the wide prevalence of smallpox and the tremendous mortality; none escaped, rich or poor, high or low, all paid the toll in death or terrible disfigurement.

In the present day, owing solely to the almost universal employment of vaccination, smallpox is a minor factor in our mortality reports, but its infrequency is beginning to breed a sense of false security and we are not as insistent in enforcing vaccination and re vaccination as the occasion demands. In considering the value of vaccination, it must ever be kept in mind that revaccination is just as important as the first vaccination; this is because the immunity given by vaccination gradually disappears and in many individuals this immunity has passed in seven to ten years. A child should therefore be vaccinated at infancy, and about every seven years thereafter.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

As smallpox vaccine was the first biologic product used for the prevention of disease, so was diphtheria antitoxin the first to be used for curative purposes, and its value has been so well proven that it seems hardly necessary to more than mention it. It matters not how we study the question, the conclusion is always the same, namely, that the average reduction of mortality from diphtheria by the use of antitoxin in the treatment of diphtheria has been not less than 50 per cent and under the most favorable conditions a reduction has been had to one-quarter or even less of the previous death rate. This has been the experience, not in one city at a particular time, but in many cities, different countries, and at all seasons of the year, and always in conjunction with the introduction of antitoxin and proportionate to the extent of its use.

In spite of the fact that the case mortality of diphtheria has been reduced, there has been no marked reduction in the number of cases, except where immunization has been made on a large scale, but now have available means by which we may soon be able to effect a reduction in the actual number of cases of diphtheria and a still greater lowering of the mortality.

Before discussing these newer methods, I wish to say just a few words as to the dosage of diphtheria antitoxin. The object to be arrived at in the administration of antitoxin is to neutralize immediately the toxins or poisons produced by the diphtheria bacilli and which are circulating in the blood. Manifestly, this can best be done by giving a sufficiently large dose of antitoxin and repeating when necessary. Not less than 10,000 units should be given as the initial dose and if the case is of the laryngeal type, or is seen after 48 hours from onset, the dose should be larger and repeated as indicated by the condition of the patient. The response is obtained more quickly when antitoxin is given intravenously.

One thousand units is the dose for prophylaxis or immunizing purposes, but it must be remembered that the immunity conferred by antitoxin is passive and only lasts about three weeks.

The newer methods to which I have referred are what are known as the Schick test for the determination of the individual's immunity to diphtheria, and the use of toxin-antitoxin mixture for producing active immunization.

As stated in the U. S. Public Health Reports, the increased use of these procedures, especially where diphtheria is at all prevalent, would constitute a distinct advance over the present methods of controlling the disease. The Schick reaction depends upon the fact that if a minute amount of diphtheria toxin is injected into the skin, a local reaction results if the individual is susceptible to diphtheria, while no reaction occurs in a non-susceptible person.

It is not necessary to give you the details of the test other than to state that a fresh solution of diphtheria toxin is prepared so that 0.1 c.c. represents 1-50 of the minimum fatal dose for a 250 gram guinea pig. This amount is injected with a special needle into the skin on the flexor surface of the forearm. If positive the reaction appears in 12 to 24 hours and distinct in 24 to 48 hours. It reaches its height on the third or fourth day. There may occur certain pseudo-reactions, but with experience these are differentiated without difficulty.

"The Schick test is of practical value in determining the immunity to diphtheria of the public in general, but especially of the child population in schools, hospitals, institutions, and in homes during an outbreak of diphtheria. It will save a considerable amount of antitoxin and avoid unnecessary sensitization of more than 65 per cent. of the exposed individuals. The test is also of distinct value in the active immunization of susceptible individuals against diphtheria with mixtures of toxin-antitoxin, and in the diagnosis of clinically doubtful cases of diphtheria."*

As usually supplied, the Schick test outfit consists of a tube of diphtheria toxin and a vial containing a measured amount of sterile salt solution. By mixing the contents of the tube with the saline, a solution is obtained which is ready to be injected into the skin.

After discovering susceptible individuals by means of the Schick Test, the question at once arises as to how best to immunize these individuals. The protection afforded by injections of diphtheria antitoxin is of a very short duration, three or four weeks being the usual period. Far more lasting is the protection afforded by active immunization. During the past three years Park and his co-workers have employed active immunization with toxin-antitoxin mixtures in the case of over 4000 susceptibles (including 1000 infants under one week old) without the subsequent occurrence of a single case of diphtheria. Park summarizes his observations as to the value of active immunization as follows:

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*Text of a circular of information issued by the Department of Health, City of New York.

The procedure is absolutely harmless. No reaction develops in infants, while in other children and adults a moderate swelling of the arm may appear and last from one to three days. One injection gives immunity to 80 per cent. of those previously susceptible; two injections gives immunity to 90 per cent, and three injections to 97 per cent. The immunity conferred lasts for at least three years and probably much longer. No diphtheria has occurred in those so far immunized.

In order to increase the use of active immunization by practicing physicians, several establishments making biological products put up small vials containing a mixture of diphtheria toxin-antitoxin. This mixture is used undiluted. The dose is 1 c.c. injected subcutaneously in the arm at the insertion of the deltoid. The injection is repeated at weekly intervals until three injections have been given. For children under one year of age the dose is 0.5 c.c. In the younger children the local and constitutional symptoms following the injections of toxin-antitoxin are much less marked than in older children and adults. The difference is due to a greater susceptibility of the older children to the diphtheria bacillus protein which is present in the mixture of toxin-antitoxin.

The development of an active immunity is determined at the end of three months by means of the Schick test. It has been found that the development of antitoxin in many individuals if often a slow process requiring from 8 to 12 weeks before a sufficient amount is produced to inhibit the Schick reaction. The number of successfully immunized individuals who will show a negative Schick retest after three injections of toxin-antitoxin will be, in different groups, from 90 to 99 per cent.

Any discussion of the use of biologic products in public health work would be incomplete without reference to the wonderful results achieved in preventing typhoid fever by immunization with typhoid vaccine.

During the Franco-Prussian war sixty per cent. of the total German mortality was due to typhoid fever. In the Boer war, there were 31,000 cases of typhoid fever with 5,877 deaths in the British army. During the Spanish-American war, among 147,795 troops, there were 20,926 cases of typhoid fever with 2,192 deaths, in about eight months.

Typhoid vaccination was begun by Pfeiffer and Kolle and simultaneously by Wright in 1896. The former inoculated two volunteers and the latter immunized 19 persons with heat-killed cultures. Vaccination against typhoid was begun in the United States by Colonel Russell in 1908. The results of these first inoculations were so striking that it was soon made compulsory in the army. During the Spanish-American war before the days of vaccination, practically one soldier out of seven had typhoid fever and one out of sixty-seven died. During the mobilization on the Mexican border in 1916, where a larger number of soldiers were stationed than during 1898, and in practically the same climate, but with compulsory vaccination, there were only 24 mild cases of typhoid with no deaths.

If the same prevalence of typhoid fever had existed as was found during the Spanish American war, out of the four million troops we had mobilized in the great war, there would have been approximately 600,000 cases of typhoid with 60,000 deaths. Or in other words, practically twice as many would have died from typhoid as were killed in action. With typhoid vaccination, typhoid fever has been practically eradicated in the army.

During the mobilization on the Mexican border in 1916, after the troops had been immunized against typhoid by use of typhoid vaccine, there developed some small epidemics of paratyphoid fever. Typhoid and paratyphoid are very similar in their clinical manifestations, but can be definitely diagnosed in the laboratory by agglutination tests. While the organisms causing typhoid and paratyphoid are quite similar, one does not produce immunity against the other. Paratyphoid is not so common as typhoid, but cases do occur not infrequently. It has been found by experiments conducted at the Hygienic Laboratory and elsewhere that better protection is obtained for each of the three diseases, namely, typhoid, paratyphoid A and paratyphoid B by use of the combined triple vaccine than when each of them is injected separately. Each cubic centimeter of the triple vaccine contains 100 million typhoid, 750 million paratyphoid A and 750 million paratyphoid B bacilli. Three injections usually produce an immunity which lasts from one to three years or longer.

While rabies or hydrophobia does not begin to compare with diphtheria or typhoid fever as a cause of death, nevertheless there is on the part of both physician and laity a great horror of the disease due to the fact that the mortality is practically 100 per cent. We know of nothing that has an influence on the disease once developed, but fortunately through the genius of the great Pasteur we are able to prevent the development of the disease in all but a very few.

As most of you know, it was formerly necessary for a person needing the Pasteur Treatment to go, at much expense, to a Pasteur Institute for treatment but in recent years it has been possible to prepare the virus in a form so that it remains potent for a sufficient length of time to be sent to all sections of the country. It is therefore no longer necessary to send a patient bitten by a rabid animal to a Pasteur Institute but the physician without interruption with the daily life of the patient can administer the treatment in his office. This is without question a distinct advantage alike to patient and physician and the extension of this method of distribution of the Pasteur treatment should be greatly extended.

Time will not permit me to more than refer to the use of other biological products of importance in public health work. Among such are tetanus antitoxin for the prevention of tetanus or lock-jaw, the use of which saved so many lives in the great war; the use of cholera vaccine for the prevention of cholera, of plague vaccine against bubonic plague, and anti-meningitis serum in the treatment of meningitis. All have proved their value in preventing or curing diseases, thereby contributing to the health and happiness of mankind.

In addition to those biologic products used for the prevention and cure of diseases, we have the large number used for the diagnosis of disease.

Most of these are familiar to all of you, either by personal use or through the assistance of public or private laboratories. Among those most commonly used are the Wassermann test for the diagnosis of syphilis, the Widal test for the diagnosis of typhoid fever, the mouse test in the differentiation of pneumonia types, the bacteriologic diagnosis of meningitis, gonorrhea, rabies, tuberculosis and others.

I do not think I should close this brief discussion of my subject without giving a few words of warning. Biologic products, to give their best results, should be properly prepared, free from harmful substances and fully potent. These factors are safeguarded to a certain degree by the laws and regulations of the U. S. Government, but there still remain much in addition that can only be present as a result of the presence of the PRICELESS INGREDIENT and the PRICELESS INGREDIENT is the honor and name of the maker and in no other therapeutic product is this more important than in the case of biologies. It is, therefore, of the highest importance that only the product of a conscientious and reliable manufacturer be used. Furthermore, it must always be remembbered that biologic products are what is known as thermolabile, that is, they are adversely affected by higher temperatures than 50° F. For example, smallpox vaccine soon loses in its ability to produce a satisfactory "take" when exposed, even for a few hours, to high summer temperatures, and also a very few days at ordinary room temperature. The same is true, but to a lesser extent, of the antitoxins, serums, bacterial vaccines, etc. Biologic products should always be kept in the ice box until immediately before use.

DISCUSSION:

William Thomas Little, Calvert City: I did not know until a few minutes ago that I was to open this discussion. Dr. South took snap judgment on me and said I was scheduled for this part of the program.

I have had some experience in rural practice in the prevention of smallpox, diphtheria, and typhoid fever, such as we all see and I have had very little trouble in the prevention of epidemics of smallpox particularly. I have made it a routine practice to vaccinate every one who has been exposed to the disease. I do not ask them if they wish to be vaccinated, or what their preference is in the matter. I simply go to them and tell them it is necessary for their own safety, and it is the law they must be vaccinated, and I immediately vaccinate all exposures. I have not had in fifteen years of practice, except in two families, a second case of smallpox. Last year I had a case of smallpox in a family, with 43 other exposures outside of the family. I think there were 10 in this family. I immediately vaccinated all in the family and the other 43 with a stock vaccine which had not been properly refrigerated, but I did not know this at the time. At the end of a week there was only one successful vaccination out of the number. I telegraphed Dr. South, she sent me a supply, and I revaccinated all exposures, and 5 in the family did not have smallpox.

We are not having as much trouble in country practice in getting people to be vaccinated against typhoid and smallpox and in taking preventive diphtheria treatment now as we had before the war. I think that was one great advantage, namely, that by inoculating all the boys in the service not only prevented them from having the disease, but when they came back home it made it much easier for the physician to inoculate other members of their family when the occasion arose.

J. F. Young, Monticello: I am sure we have all enjoyed the paper presented by Dr. Anderson on biologic products and their use in preventing disease. It is true that administrative health officers do not use all of these products that they might, but there is an element in this besides the health officer and the biologic products, and that is the people. There are a great many people in this country who will accept these biologic products when offered to them and are made to understand their use without question. There is another class of people who will not accept these products, no matter how much you tell them they may be benefitted by them, and that is forcibly illustrated by the use of smallpox vaccine. In our brilliant success for more than a century in banishing smallpox from most of the civilized countries of the world, there are people in Kentucky today whom you cannot vaccinate. This is true of many other products we have at our command which are quite as essential as the smallpox vaccine.

Diphtheria can be banished from this country if everybody could be vaccinated, but it is just about the same old story as vaccinating for smallpox. They will not yield, but it is up to the health officer and to the physicians of Kentucky to so educate the people that we will be enabled to vaccinate the children with the toxin-antitoxin and diminish the number of cases of diphtheria in this state. I think the Schick test is a little slow to depend on at all times. You understand that that can be used in two ways, first into the skin or subcutaneously, but it takes from twelve to twenty-four hours for a reaction to take place if it is a positive reaction. That is too slow if you have a case of diphtheria in hand. If you go to a family and find a child with diphtheria you cannot wait for the Schick test and raise your immunity with toxin-antitoxin injection; but you should immediately give 1000 units of diphtheria antitoxin and you have an immediate passive immunity. This will last three or four weeks, and at that time the child will be well. I think every physician in Kentucky should familiarize himself with the Schick test and use it when he does not have this immediate danger of spreading the disease, and that is the point. We must proceed along that line to educate the people, so that we can use this test and use toxin-antitoxin to raise the immunity which will last for sometime.

As to typhoid fever, vaccination for typhoid fever has won its laurels too. It has been used all over the civilized world for a few years and so extensively in all armies of the great World War that it has saved several thousands of lives. There are many people I understand who do not use typhoid vaccine in treating typhoid fever. They say it is irrational and useless. I have been led to believe from a number of years of experience at the bedside that there is no remedy that will give you better results than typhoid vaccine in treating typhoid fever.

We cannot always make an accurate diagnosis of typhoid fever on our first visit. Perhaps the man who does an active country practice may be able to make a diagnosis sooner than the man who practices in the city or smaller town, because you do not see your patient for several days after he becomes sick, while in the town or city you see him immediately. My practice is, when I find a patient with typhoid fever, to give him vaccine on the first visit. If you have made a mistake and find it is some other febrile disease you have not done the patient any harm, and if it is typhoid fever, repeat the dose in about three days, and in about five days, and in twelve or fifteen days the temperature is generally normal. It is essential for the best results to begin typhoid vaccine very early, yet it is not contraindicated in these later cases. If you see a case in the third week, the second week, your results will not be so good. You will not see the improvement so plain as you see it if the case is properly handled in the early stages. But I am sure that it will increase the antibody production sufficiently to turn many a case that was very unfavorable into a favorable result.

E. B. Bradley, Lexington: I enjoyed Dr. Anderson's paper very much. Much of this which he told us has been emphasized for a great many years, but the active immunization against diphtheria by means of toxin and antitoxin is comparitively new. I believe that all of us have a very good idea of the results of typhoid immunization, of smallpox vaccination and the like. One or two points occurred to me while the discussion of the paper was going on. Why is it that we get so many failures in vaccinations against smallpox? How many times do we see children who are brought to us by their parents, who tell us that this child has been vaccinated several times and the vaccination did not take? It the reason why it did not take due to insusceptibility of the child, or is it that the vaccine virus is not potent? It seems to me that in the majority of cases the fault lies in the vaccine and not in the child. The virus may have been perfectly good when it left the manufacturer, but it has been kept under conditions which have allowed it to deteriorate to such an extent that it will no longer give a successful vaccination. It seems to me that we should have regulations in regard to the keeping of vaccine so that only those who keep it under proper conditions would be allowed to sell it.

It has been my experience when vaccinating a large number of school children, that in using fresh vaccine we get 90% or more of successful takes. We do not get anywhere near that large a percent with ordinary commercial vaccine as bought at the drug store.

The question I wish to ask Dr. Anderson is this: Is it necessary to send out anti-rabic serum in thermos bottles daily? I know that one manufacturer sends it out seven doses at a time. Is this supposed to be as efficient as emulsions of the cord that are sent out daily? We have no doubt as to the efficiency of typhoid inoculation. It seems to me that this has been absolutely proved by the experience in the army. On the other hand I have seen several cases of typhoid in girls who within six months or a year previously had had anti-typhoid inoculation. This is probably due to the way the bacterial vaccine has been kept.

George G. Thornton, Lebanon: I just want to say a word or two about vaccination for smallpox. In all my experience I have never seen a single case of smallpox in an individual who had any kind of scar from vaccination. On the other hand, I have never seen a family in which a number of them that were vaccinated against smallpox from the grown adult up to the grandfather contract smallpox, while others in the family who were not vaccinated contracted the disease. Furthermore, I have never seen, no matter how the vaccination had been done, any case that had a vaccination scar take smallpox.

I saw a young man, 22 years of age, who had a violent attack of smallpox. He had never been vaccinated. His mother had only one scar; she was not revaccinated and did not contract smallpox. The grandmother had been vaccinated a number of years ago and she did not take smallpox, and I believe I can offer to the State Board of Health a suggestion that will aid somewhat in the control of smallpox by abolishing quarantine in cases of this disease, because I am perfectly sure I am safe when I say that the quarantine of smallpox cases only slows up the progress of the disease as it is forced in the community, whereas vaccination is a positive preventive of smallpox. If we have one absolute positive means of prevention, why not rely on that when the other measure is in doubt?

So far as vaccine in typhoid is concerned, my experience has been this: I have had two or three patients in a family come down with typhoid fever after I have given the first inoculation, and I make it a rule to inoculate every member of the family with typhoid vaccine that will submit to it on my first visit. I have seen two or three cases come down with typhoid after the second vaccination. I have never seen but one case come down with typhoid after a third vaccination, and that patient came down within one week after the third vaccination. I have just wondered how soon after the last vaccination the patient really became immune. I would like to hear from some of the other members who have had experience along that line.

H. A. Kelley, Louisville: It was mentioned here a while ago by one of the speakers that in a great many cases the vaccination did not take, and that it was due to the virus. I believe from an experience of over 10,000 vaccinations as city physician of Louisville, extending over a period of twelve years, where I did all the school vaccinations, and during several epidemics of smallpox, the reason the vaccination does not take is mostly and largely due to the operator himself. I have seen some vaccinations done where there was a big scar made and a lot of blood on the skin, and in the majority of these cases you will find that the vaccine, it makes no difference how good it is, will not take. I kept a very fair record of the successful vaccinations and I find they ran up over 90 per cent. Usually I make two scarifications. I simply scarify the skin so as to get a small amount of serum, and then put on the vaccine. This vaccine you get in the drug stores is not as good as that which you get from the pharmaceutical houses, or the vaccine that is kept by the health authorities, because it has in all probability not been kept on ice. By putting your vaccine on the scarification, where you just denude the skin, then withdrawing blood, you will get a much larger and better percentage of successful vaccinations. It is unnecessary to make a big scarification, but enough to expose the tissue below the skin. Dr. McCormack, the father of our present Secretary, was with me at one time where there was a doubtful case of smallpox, but we always made it a rule to vaccinate everybody in the vicinity and to quarantine them until they had been vaccinated. He put me on at that time to the idea, which is a splendid one, and for which I have been grateful to him ever since, of making two scarifications, and if you do that you will find your percentage of successful vaccinations will be much larger.

In regard to diphtheria antitoxin, I agree with the doctor that where you have a case of diphtheria you certainly do not want in that family to rely on your Schick test. You want to give immediately every member of that family a dose of antitoxin, and then to take the surrounding neighborhood and try your Schick test on those that have not been exposed. I think it certainly would be criminal negligence on the part of any physician not to give antitoxin to those who have been exposed.

With reference to typhoid vaccine I believe the records are such that they will appeal to every intelligent man to accept them.

The preceding speaker asked a question and stated that some patients to whom he had given vaccine came down with typhoid fever a few days after the first inoculation, and some after the second inoculation. I believe in those cases it was due to an infection that had already taken place, or there was a good deal of infection at the time they received the vaccine. I believe if these patients had been given the vaccine before any infection had taken place, the typhoid vaccine certainly would have prevented the infection.

John W. Scott, Lexington: I want to make a confession right now before this Association. If the view of Dr. Kelley is correct, I am a criminal. I do not believe, however, that it is good practice, generally speaking, to give immunizing doses of diphtheria antitoxin in private practice to other members of the family who have been exposed for the reason that, in the first place, diphtheria is not a highly infections disease. A great many of those exposed escape the disease. In the second place, we have an agent, which is almost infallible in its curative property if the disease is recognized early which it would be under such conditions. In the third place, you are giving the subject a sensitiveness to horse serum and giving him protection for only three weeks when, very possibly, if the epidemic is of any duration, he will need horse serum at some future period, at which time the injection of the horse serum containing the antitoxin will involve some danger unless desensitization is done. For that reason, for many years I have not given immunizing doses of diphtheria antitoxin in private practice. I do not intend to discuss the practice in institutions where the problem is different.

Delia Hertzsch, Louisville: With regard to vaccination for smallpox, if you have a good virus and you do your work well, your vaccination is likely to be successful. Being medical inspector of schools, I see a great deal of poor work done in this way: When we vaccinate a child we put no shield on or any covering whatever, and we have splendid results. I think the shield ought to be abandoned, because it is the cause of so many ulcers, and when we have these large ulcers they are not good vaccination marks at all. The same way with a bandage. I would not permit a bandage or a shield to be applied to the arm. I think those are two things that cause a great deal of damage in connection with vaccination.

Vernon Robins, Louisville: We are very fortunate indeed to have had Dr. Anderson address us today, and those who belong to the Public Health Association know that he has been for a long time a valued member and a leading officer of that organization. As Director of the Hygienic Laboratory of the United States Public Health Service in the past, he has had a very large opportunity along the lines which he has suggested today. If one-half of the truth in connection with the prevention of disease was made use of, many needless deaths would have been saved and much sickness avoided. To that end I hope this year we will be able to have attached to the Health Department of this city a secretary or someone serving as secretary, with not too much ordinary secretarial duties, who will serve as a public advertiser along popular, yet scientific lines, so that the people at large may be informed of these facts. It is well enough for you and I to know them, but that is far too little. Boards of health are amply informed what to do and what they ought not to do, but it is the people them selves who must know these truths in order to properly apply them.

Asa W. Nickell, Louisville: I am surprised, and to a large extent astonished, at the remarks of Dr. Scott, who thinks it would not be right to immunize people who have considerable susceptibility where there was a member in the family who had diphtheria. In the institutions in which I have worked in the East and in the institutional care of children in foundling asylums, it has been the practice to give immunizing doses of diphtheria antitoxin. There has never been any danger from it. If there are any gentlemen present who have seen cases of anaphylaxis following this practice, I would like to hear them speak of them. In institutional cases that practice is carried out. People are more exposed in their homes than they are in institutions because they do not use the prerequisites. They do not use care. They are not educated, especially in the country, to isolate children and keep them away. They will use the same towel, the same drinking utensils, and they use them in a common way. When we give 1000 units of antitoxin there is no danger of anaphylaxis, and, as a rule, statistics will bear me out, and if we can safeguard our children, it is one of the wisest things we can do.

I do not think we should allow the statement of any member to go on record unchallenged that in a violent case of diphtheria in a home we should let the other innocent victims suffer when we have such an agent at our disposal as diphtheria antitoxin.

It is unquestionably proper to Schick them, and use the Toxin-Antitoxin immunization by those who have, or can procure, these agents quickly, and who understand the technique. But many in attendance here live in remote districts and instead of losing such valuable time, should, I think, by all means, take no chances and use the immunizing doses of Antitoxin.

It is unnecessary to speak of and emphasize the value of these biologic products. We can see what has been accomplished by vaccination in cases of smallpox. I take it, most of us are familiar with the results Major Russell accomplished by typhoid vaccine. We know the value and usefulness of triple vaccines to take care of paratyphoid.

I would like to hear Dr. Anderson state his experience in closing the discussion as to what he thinks of the inmates of a home being immunized.

A. R. Bizot, Louisville: I was much afraid somebody would not challenge the statement regarding the administration of immunizing doses of diphtheria antitoxin. I am not familiar enough with the toxin-antitoxin to say whether it will immunize against diphtheria or not. I think it is comparitively new yet and we have very few statistics on the subject.

If you want to see a sad picture, it is that following an immunizing dose of 1000 units of antitoxin, where a child develops diphtheria within ten or fourteen days from the time the immunizing dose has been given, which is followed by cyanosis and death. That is the way they end with me.

Another point: After the immunizing dose has been given, call it anaphylaxis or whatever it is that takes place in the blood, you can administer 40,000 or 60,000 units of antitoxin and you will get no results whatever. That has been my experience. Where children have been exposed to diphtheria, I give the one suffering a dose of 20,000 or 30,000 units of antitoxin, and watch the other children, and the minute they develope laryngitis, I give them a curative dose without giving them an immunizing dose.

Morris Flexner, Louisville: I have enjoyed Dr. Anderson's paper immensely. There are so many angles to this subject, that there are only one or two pointes I would like to touch on, one of which is in regard to vaccination against smallpox. The reason a lot of children do not have takes is because they are protected. The only way to tell that a child is protected is to follow the vaccination to see if you get an immunizing reaction the same as the von Pirquet. If you examine a smallpox vaccination on the second to fifth day, a reaction takes place which is very similar to the von Pirquet reaction, showing you do have protection. You get a slight red area at the end of the second day, and later, say the fifth day, you get what is known as a reaction vaccinoid—a hard, elevated lump around the point of vaccination.

In regard to the diphtheria discussion which has arisen, I am inclined to agree with Dr. Bizot. I think the giving of antitoxin to everybody else in the house that has been exposed is criminal. There is such a thing as anaphylaxis, and when it occurs you are up against it. A certain percentage of people are protected. Why give them diphtheria antitoxin when they are protected?

The Schick test can be read in most cases in 48 hours. Those that are positive can be given the first injection of the toxin-antitoxin mixture and kept under observation. If they develop a sore throat, they should be cultured, and the doctor should hear from that in eight to twelve hours. If it is a positive culture it is early enough to cure the disease, and by this method you know you have not given antitoxin unnecessarily. A matter of as great an importance is to try to find the carrier that gave the patient the disease.

John F. Anderson, New Brunswick, New Jessey (closing): I feel very much gratified indeed with the discussion. I have learned something from it myself for the reason that those who have spoken are people who are actually using these products and their first hand information is of very great value.

I will try to answer most of the questions raised, not by grouping them but in the order in which they were asked. First in regard to the relative value of giving immunizing doses of toxin-antitoxin mixture and a single dose of diphtheria toxin-antitoxin, I quite well realize that if time permitted we could go into this discussion at great length, but as it does not, I will say that the way I feel about it is this: There is such a thing as sensitization against a protein. You can sensitize an individual by giving a dose of antitoxin; you can sensitize an individual by giving horse serum or any product containing protein. If you give the same individual any time after twelve days a second dose, but larger than the first dose, you are apt to notice in that individual a reaction such as that described by some gentleman a few moments ago. These reactions are very uncomfortable for the patient. I have devoted a great deal of attention and study to the question of serum sensitization and anaphylaxis, since Dr. Rosenau and I published our first paper on the subject of anaphylaxis, and I have yet to see a single fatal case following a second injection of serum at any time. Patients are uncomfortable, they have an unpleasant time, but they do not die. All the deaths recorded in the literature have been following a first injection. Dr. Rosenau and I collected 29 cases in 1906, and each one of the deaths followed the first injection, and not the second or subsequent injection. The way it appears to me is this, that if I were called by a family to see a case of diphtheria, I would have to decide whether I wanted to use the Schick test or wanted to give a single dose of antitoxin. If I had the laboratory facilities so that the diagnosis could be quickly made or I was so situated that I could obtain the necessary quantities of antitoxin, I would be inclined to apply the Schick test to those individuals who were not sick, because diphtheria antitoxin, as has been said, is a specific, and diphtheria antitoxin, if given the first twenty-four hours, will cure 100 per cent of the cases, and I think I am absolutely safe in making that statement, but if there is a delay of over twenty-four hours the mortality increases in a very rapid ratio. We can get a reading of the Schick test within twelve or twenty-four hours; we cannot get the immunity from toxin-antitoxin mixture in less than eight weeks therefore, in certain cases it is well to give an immunizing dose of antitoxin.

The question has been raised why vaccination against smallpox results in a satisfactory take in some cases and not in others. It is due to the manner in which the smallpox vaccine has been kept. If it is exposed for a few hours to a temperature around 100 degrees F. such as we frequently have in the summer time, its potency is destroyed in two or three hours so that it will not produce a take. If in transportation the vaccine is placed near a radiator in the express car or mail car and is exposed to that temperature, that particular lot of vaccine is ruined. We have had antitoxins perfectly solid, and there is no agent I know of other than heat that will produce that condition. It has happened not infrequently that biologic products have come in contact with a radiator or steam pipes in the mail car or express car, thus seriously affecting the potency of the products.

I doubt whether there is absolute immunity to anything. In France there were 260 odd cases of typhoid fever among soldiers who had been given a complete course of treatment before they developed the disease, and the conclusion reached by the army Board was that that typhoid vaccine conferred only a relative immunity, so that the individual who had a complete course of treatment—at least three weeks before infection—was able to resist ordinary infection, but if he was exposed to an overpowering infection, to heavily infected milk, for example, to a polluted water supply, or ate food that was heavily infected, the body was unable to resist the overwhelming infection.

In regard to the shipment of rabies virus in thermos bottles, I will say we went into this matter in the hygiene laboratory, and saw no particular reason for shipping rabies virus in thermos bottles. A thermos bottle is valuable in keeping the virus cold when it is put in there cold, but a good deal will depend in the summer time on keeping heat from getting into the thermos bottle.

The question has been asked in regard to how long the period of immunity lasts against tpphoid fever developing after typhoid vaccine has been used. It is hardly safe to count on immunity until three weeks after the completion of the full course of treatment.

Dr. South summed up the matter in a few words when she said that to make these products of most value they must be kept cold, and unless that is done their potency is seriously impaired.

Carcinoma of Kidney.—Quinland cites a case of carcinoma of the kidney with metastasis to the liver, heart, lungs, supra-renals, lymph nodes and mesentery; tumor thrombus of inferior vena cava and right auricle. He also describes a specimen of kidney carcinoma. The cases indicate the origin of carcinoma from renal epithelial cells. The structure of the original tumor and its metastases approach very closely the structure of adenoma of renal cell origin,

INHERITED SPINAL PARAPLEGIA, CASE REPORT*

By JOHN W. MOORE, Louisville

C. H., male, colored, aged twenty-one, was admitted to the Louisville City Hospital October 3, 1921, complaining of failing vision and inability to walk well.

Family history: The patient states that his father died at the age of forty-seven from "dropsy;" that he became blind gradually when about forty and suffered a great deal from headache during his blindness. Mother living and well at about the age of sixty years. Has one sister aged twenty-three, in good health, but is nervous. However, the nervousness does not apply to stiffness of the extremities nor impairment in gait. One sister and two brothers died—at six days, one month, and three years, respectively. On the father's side an aunt became victim of staggering gait at age of forty (this gait being similar to one under infuence of alcohol) ; an uncle presented the same type of gait, but the age at which this peculiarity developed is unknown. An uncle on father's side became crazy. Otherwise the family history is negative.

Previous history: Patient had pneumonia at one and a half years, and typhoid fever at three. No other diseases of childhood; no illness during adolescence. Denies lues and gonorrhea. He states that so long as he can remember he had to urinate once during the night; quantity apparently not excessive; no burning on urination. No headaches; no vertigo; no palpitation nor shortness of breath. Appetite good; no intestinal disturbance.

Present illness: At the age of fifteen (six years ago- the patient states that he passed the eighth grade in school with apparently good eyesight. However, he had had always had to hold the book close to his eyes to see the letters. During the summer, his fifteenth year, he noticed for the first time that he could not see the street numbers as well as usual. At sixteen he began school work but remained there only two weeks because he was unable to see writing on the blackboard. He then discontinued school and began working in a hat store, for here he could see the lettering on the boxes. His vision continued to fail and within a year he had to quit work in the hat store. At seventeen he entered the blind school where he remained until June, 1921. While in blind school his eyesight gradually failed until present findings. At fourteen the mother states the patient began to sway when walking. This became gradually worse until when sixteen years old he had the gait of an intoxicated man; in fact, at eighteen he was arrested by a policeman who insisted that his gait could not be other than that of a drunken man.

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*Clinical report before the Louisville Medico-Chirurgical Society.

Physical examination showed a well developed and nourished adult colored male about twenty-one years of age. Muscular development good. Eyes reacted slightly to light; vision 6-200; field of vision reduced fifty per cent; ocular movements normal; no nystagmus. Ophthalmoscopic examination showed optic atrophy. Teeth in poor condition, several showing marked decay, and one apical abscess. Heart and lungs apparently negative; abdomen negative. The presence of a left inguinal hernia noted.

Central nervous system: Mentality about normal for his race. Patient answers questions slowly but correctly; no scanning speech. Reflexes: All reflexes of upper and lower extremities, together with abdominal and cremasteric, markedly exaggerated. Reflexes of lower extremities at times violently produced by light touch. Babinski on either side found positive on several occasions. However, this reflex has not been constantly present. At no time has there been a negative reflex, that is flexion of great toe when sole of foot is scratched. Oppenheim's and Gordon's reflexes absent; reflex of lower jaw negative; pharyngeal reflex present; ankle clonus and patella clonus positive.

Station: Patient stands with legs wide apart and sways from side to side with eyes open. The swaying is present, but not intensified, when eyes are closed. He is unable to stand with feet close together. Muscular strength apparently normal; space sense well preserved. The heel-knee test performed with remarkable accuracy when slowly attempted; likewise heel-shin test slowly accomplished without zigzag movement; finger-nose test when slowly performed shows nothing abnormal.

Gait: When patient attempts to walk he stands first with outstretched arms, trunk forward in rainbow manner, and legs wide apart; in this manner he steadies himself; the right lower extremity is held in a hyperextended position and brought around in a swinging manner by bending forward at knee; the feet are brought down heel first while toes remain in an hyperextended position. Soon after locomotion is attempted the patient sways forward and backward and from side to side with arms outstretched and dangling. The whole picture is not unlike that of a drunken man. Even when supported locomotion is accomplished in the manner described.

Sensory examination: Pin prick, touch heat and cold sensations normal throughout. There is no disturbance in deep sensibilities; stereognostic sense normal. No bladder nor rectal disturbance.

Wassermann of spinal fluid and blood negative on October 6th. Total non-protein blood nitrogen 28.2 mgm. per 100 c. d.; urea nitrogen 15 mgm. per 100 c. c. Roentgen-ray examination shows normal sella turcica.

The temperature, pulse and respiration show nothing remarkable. A slight rise in temperature and pulse rate during the last six days can be accounted for by the tooth abscess already mentioned.

Diagnosis: Heriditary spinal paraplegia.

DISCUSSION

S. G. Dabney: I am reminded that the father of the patient shown by Dr. Moore, when about forty years of age, was seen by the late Dr. Wm. Cheatham and myself, and we agreed that he had atrophy of the optic nerve. Atrophy in his case progressed until blindness was complete.

While looking at the patient before us I have been trying to think what would produce optic atrophy beginning at the age of fifteen years. From the standpoint of the oculist that is the only question I care to discuss. Brain tumor would cause optic atrophy, but there are no evidences of brain tumor in this case; meningitis will cause atrophy of the optic nerve, but there is no such history here. There is a rare disease which I have never seen occurring in families known as familial atrophy; it is unusual and may occur in several members of the family. However, for a man to become blind at the age of forty from optic nerve atrophy is another story.

I believe we have overlooked syphilis in many cases of this character. Barring brain tumor and meningitis I can recall few cases of optic atrophy that were not rather plainly due to lues, the patients being untreated or imperfectly treated possibly for a few months. So it is extremely difficult for me to connect the symptoms in this case with atrophy of the optic nerve.

I presume this patient has not disseminated sclerosis. This appearing in early life might produce optic atrophy, but not abbsolute blindness. His vision has failed gradually and he will probably become totally blind.

John J. Moren: I had this man before the clinic last Wednesday during my lecture hour, and it was my opinion then that he had primary lateral sclerosis. Dr. Moore has mentioned some facts concerning his history that we did not know at that time. From the additional history he has obtained it seems we are contending with a congenital or heriditary condition in this case.

The type of atrophy mentioned by Dr. Dabney most frequently occurs in amaurotic family idiocy. Optic atrophy usually is noted between the ages of three and six years. It begins as optic atrophy and finally results in general muscular atrophy with flaccidity instead of spasticity which is present in the case before us. There are three types of the disease which are believed to be heriditary, viz., Frederich's ataxia where the degeneration is limited to the lateral and posterior columns of the spinal cord; primary lateral sclorosis or spastic paraplegia where the degeneration is limited to the lateral columns; heriditary cerebellar ataxia where the process is limited to the cerebellum and its tracts.

In view of the fact that this man has no sensory symptoms and practically no incordination, I am rather inclined to believe that it belongs to the spinal or spastic type.

As to the interpretation of the optic atrophy, I am at a loss to explain this. I see no evidence to associate it with brain tumor, so the optic atrophy must have started in the nerve itself. The man's gait is spastic; he cannot bend his knees. I tested him for past-pointing, also the finger-to-finger and finger-to-nose test, and he did very well.

W. E. Gardner: With the absence of bitemporal palor of the optic discs, nystagmus and intention tremor, in this case, the optic atrophy being rather general, I believe we can exclude multiple sclerosis. Clinically, the case seems to be one of lateral sclerosis, but whether it is primary or of the familial type, it is difficult to say. So far as I can recall I know of no authorities who mention optic atrophy in connection with the heriditary type of spastic paraplegia. The general optic atrophy would suggest syphilis, but in the absence of a history of syphilis, and with a negative blood and spinal fluid, and the fact that the x-ray shows that this man has an enlarged sella turcica, there is a remote possibility that he may have a tumor or a cystic degeneration of the pituitary body. I would like to ask Dr. Dabney whether or not optic atrophy might not occur from this cause. I know that it is a very remote possibility, and that such a tumor would have to press pretty far back upon the crura cerebri to produce the symptoms of paraplegia that are present here, along with a marked exaggeration of all the tendon reflexes. I think it would be well to bear this in mind, however, and that other x-ray examinations be made of the sella turcica, as well as paying close attention to the shadaws in the frontal areas, noting if there be any tendency to thinning of the bone in this region.

I think the points made by Dr. Dabney in reference to multiple or disseminated sclerosis are very well taken, and when Dr. Moore spoke to me privately about this case, a few days ago, I at once asked him if multiple sclerosis had been considered. But since seeing the patient and hearing the history of the case, especially the family history, I would be inclined to exclude disseminated sclerosis, and consider the case as one of hereditary spastic paraplegia, but with the possibility of a tumor of the pituitary body, which might be only a coincidence or a causative factor in producing all the symptoms present. If there should be a tumor the process has been very slow and there has been an absence of the ordinary symptoms such as headaches, vomiting nystagmus, choked discs, etc., which we would expect to see.

In addition to the enlarged turcica in this case, there is also tapering of the fingers, especially of the last phalanx, which is characteristic of pituitary disease, but there is no other evidence of a hypo-pituitary secretion, such as infantalism of the gentalia, rotundity of the body, feminine voice, etc., which we ordinarily see in the Friedrich syndrome as referred to by Dr. Moore. There is no particular syndrome in the case suggesting a pituitary disturbance, but only the isolated points already referred to, and which I think worthy of consideration in connection with a diagnosis of heriditary spastic paraplegia.

S. G. Dabney: I included the pituitary body in speaking of brain tumors. Perhaps I should not have done so, because the symptoms are dissimilar in many respects. It is my understanding that in pituitary tumors the patient does not usually have headache, vomiting, etc., so often seen in brain tumors elsewhere. I neglected to speak of this feature in discussing the cause of the symptoms in this case.

I may take occasion to remind some of the members that I once showed a patient, before this society whose head had been injured in a fall. There was no history otherwise of disease or injury. Long afterwards his sight became affected, from optic atrophy, beginning on the temporal side. I mention this to show that optic atrophy may occur from pituitary disease, but by no means do we always see bitemporal hemianopsia in such cases. There are many exceptions to that rule. I was not aware, however, that pituitary tumors would produce motor symptoms such as are present in this case. Of course I do not pretend to be a neurologist.

Another patient, a Mrs. A., was seen by the late Dr. Wm. Cheatham who was kind enough to send her to see me. She had typical bitemporal hemianopsia and investigation demonstrated that she had an enlarged sella turcica. She was operated upon and died several years later from another disease.

I have seen several cases of pituitary disease, but have never seen one associatted with motor symptoms.

Wm. J. Young: About a year and a half ago we had in the clinic here at the hospital a patient with symptoms similar to those present in the case before us. In that case, however, the man had almost unmistakable luetic scars on various parts of his body. We gave him a number of intraspinous injections of arsphenamine without appreciable benefit so far as his symptoms were concerned. The spinal fluid was Wassermann negative, globulin negative, cell count always below eight. His blood Wassermann was also negative which of course is not unusual in luetic involvement of the central nervous system. The man had Argyll-Robertson pupils which was regarded as a positive sign of syphilis as he had not been a victim of encephalitis.

The patient before us has been in the syphilitic clinic, and while we made the diagnosis of syphilis we regarded his condition as practically hopeless from a therapeutic standpoint. I believe, however, it would be well to see if anything can be done by intraspinous medication. The fact that his father had optic atrophy at the age of forty does not necessarily prove that he had syphilis, but the history is indicative, and I think it is reasonable to assume this man has optic atrophy from heriditary syphilis. While the diagnosis is not clear, yet so far as I am concerned the disease is more apt to be syphilis than any type of sclerosis.

John W. Moore (closing) : It is admitted that details of etiology and pathology in the case reported are in some respects incomplete. I take it, Dr. Gardner probably means Frolich syndrome in referring to pituitary disease. It is true that pituitary involvement produces this syndrome, but in this case roentgen-ray examination showed no enlargement of the sella turcica. Most writers tell us that the symptoms in the cases of heriditary optic paraplegia develope late, while others state the manifestations are noted early. In this family, as shown by the history, the symptoms were late in appearing. I can see only one symptom of pituitary disease in the case appearing before us and this was mentioned by Dr. Gardner, viz., the long tapering fingers.

If the patient before us had syphilis it is bound to be of the congenital type, because the symptoms began when he was fourteen years of age. If he has syphilis it is tertiary in character.

As to the possibility of cerebellar tumor: The patient has never complained of headache; this would argue against the theory of brain tumor in any situation.

The case is somewhat puzzling and I am not altogether satisfied about the diagnosis. The patient now has no symptoms of multiple sclerosis, but of course these may develop later. The diagnosis of inherited spinal paraplegia may or may not be correct.

STONE IN THE UPPER URINARY TRACT.*

By Owsley Grant, Louisville.

The development of surgery of kidney and urethral calculi at present stands in general hands in an age that corresponds to that of the Renaissance in the development of civilization, where just enough light has been shed to make the picture confusing, and we cannot quite say that even to those who make Uroligical Surgery their specialty that all its problems are crystal clear. But the methods of dealing with the individual problem of stone in the urinary tract above the bladder are now shaping themselves along a recognized course that permit us to deal with each individual case in a common sense manner.

In 1884 Morris of London published a treatise regarding the treatment of impacted calculi, telling how some could be removed by nephrotomy and pyelo-nephrotomy, but containing this final sentence: "Calculi impacted in the intermediate parts of the ureter are practically beyond the reach of the surgeon." Then followed the advance in pelvic and abdominal surgery, before the days of the ureteral catheter, when all definitely diagnosed stones in the ureter were immediately attacked with the knife. The development of cystoscopy and catherization of the ureter ushered in a new era, and with them ureteral dilators and forceps of all kinds and patterns, so that now two schools have arisen, the one believing that 95% of all calculi in the ureter can be removed through the cystoscope, and the other, while believing that some few might be thus made to pass, urges early radical surgery. It seems to us that there is a median ground in the calm pool of wisdom between the two turbulent eddies of dogmatism, and that it is in this logical adjustment that always follows the enthusiasm of pioneers we find the rational treatment. There are many factors that should guide us just how far to pursue each path with safety, and it is with a consideration of these that this paper is concerned.

Etiology: This is the darkest phase of this subject and perhaps when it is clear in some happy future day we can see more logically how to obtain the best results, but that day is surely not yet. In fact, it is so hazy that we shall not dwell on it here because little that is definite and positive can be said.

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The older theory that stones formed in the kidney and pelvis as a result of the crystallization of certain substances in the urine alone, or the result of climate or diet, has been shown to be fallacious on purely physical grounds. Next came the theory of infection, but this as a sole cause for all stones is untenable, in view of the fact that stones are so much more common in men than in women, while infection predominates in the inverse ratio.

Then Hunner called attention to the role of ureter stricture in women also as a cause of ureteral stone, and Mayo presents the hypothesis that two types of bacteria are necessary, the first creating an infarction with minute necrosis causing a mucoid exudate, the second factor being the elimination at the same time of stone-forming bacteria that may come in contact with the mucoid material.

So we see it is not all certain yet, probably many factors enter and probably different factors in different cases, and it is this uncertainty which makes the after treatment a serious question. But for our present purpose, so far as diagnosis and treatment are concerned, we may consider that, like Topsy, they "just growed."

Pathology: The pathology caused by renal and ureteral stone is mainly the destruction of a greater or less degree of the functioning capacity of the kidney. Many stones are what are known as "silent stones," which lie dormant in the kidney and cause no painful symptoms and may be discovered only in the process of routine X-ray examination, many being found at autopsy in patients who had no symptoms that indicated examination of the urinary tract. Most stones, however, cause a material destruction of the kidney, either by their irritative presence in the renal substance or by blocking the outflow of urine and causing damming back of the urine with consequent hydro- or pyonephrosis. Very small single stones in the ureter may completely block the passage and bring on a sudden anuria of one kidney with consequent reflex anuria of the opposite side, and make a very grave prognosis if not promptly relieved.

The gravest danger, however, is presented by those cases of stone which block the urinary passage and permit an already present infection to gain great headway in the affected kidney and endanger the patient from pyonephrosis and the absorption of the retained toxic material.

Diagnosis: The diagnosis of stones reflects more brilliantly on our efforts than their etiology, yet even this is not always an open book. The history of the patient with ureteral colic is so typically described in text books that it would seem there could be no mistaking it, yet in our clinic we have so often been disappointed by this typical picture that we have almost come to feel that the more typical the picture of the patient's symptoms from a subjective point of view, the more certain there is to be no stone. At one time on the wards on our service at the hospital, we had six cases sent in within one week with the diagnosis of ureteral and renal calculi made by doctors on the outside who had seen these patients in their paroxysms, and of these six we were able to demonstrate by every known means, the X-ray, the catheter, the pyelogram, the wax bulb, and the stereoscope, stones in but one case and that in the cortex of the kidney. Nor are we alone. In the compilation by Quinby of cases in the Massachusetts General Hospital, we note a similar picture which pours balm on our disappointed enthusiasm. These pictures are given not in any way to reflect on those who made the first diagnosis—we should have made the same precisely in the absence of the more accurate methods, nor is it quoted to discourage the physician in making the diagnosis of renal and ureteral stone, but merely to show the difficulty that presents itself in determining always the definite cause of the trouble without every aid possible.

We have no right to say that a patient has no stone until we have employed all the means mentioned above, and all have proved negative. As for the X-ray statistics taken from two large clinics in which stone was proven by operation show how even this reliable agent may fail. In one clinic only 60% of the stones found by operation showed in the X-ray, and in another the percentage of error is shown by the following table:

Pelvis of the kidney: Positive 36; erroneously negative 6; 14% error.

Ureter: Positive 20; erroneously negative 14; 44% error.

Obstruction to the ureter catheter does not always mean stone, nor does its free passage always indicate the absence of stone. One series showed 60% were obstructed and 27.2% unobstructed which proved definite stones later.

Two other less certain but valuable methods of diagnosis remain. The ureteral catheter dipped in a solution of wax of just such consistency as to allow its smooth surface to be scratched by the softest stone is the first. It is because it is just these soft stones that fail to show on the X-ray plate that constitutes this method a court of last resort, and with proper technic the positive scratching of these waxed tipped bougies is as certain as an

X-ray, and in our opinion, no suspected case should be declared negative without this test.

The second is the use of a pyelogram or ureterogram by the injection of some solution impermeable to the X-ray, as thorium or sodium bromide, then by draining off the solution there will often show about the stone a shadow which was invisible before, due to the collection of the fluid about this stone.

And just one word about x-rays. All x-rays and x-ray operators and equipment are no more alike than are all doctors, and only the negative finding of the best equipped operators should have weight; and likewise the presence of calcified glands and phleboliths may deceive even the expert in the absence of simultaneous ureteral catherization with X-ray catheter and stereoscopic plates.

So we see that only after a confirmation by two or more methods are we justified in making a positive diagnosis and never in making a negative one until all methods have failed to elicit a sign. The purely clinical symptoms of blood, pus and other foreign matter in the urine are only to be considered as symptoms indicative of further examination, never as conclusive proof of the presence of stones.

Treatment: After a positive diagnosis of stone is made, arises the problem of treatment. It is here many factors must be considered, and here there are many eminent views at variance.

Keyes gives three reasons for operation:

(1) Because of alarming symptoms excited by stasis.

(2) Because the stone does not progress or cannot be made to progress by manipulation.

(3) Because the stone is more than five millimeters in diameter.

Judd estimates that one-half of the patients with ureteral calculi require operation, to rid them of stone.

Crowell reports, out of seventy-six cases of stone, seventy-two cases of removal of stone by cystoscopic methods.

Braasch considers contraindications to removal by cystoscope to be two cm. in diameter.

In our humble judgment this divergence of opinion really outlines a very definite course of procedure in the treatment of stone. No fast rule as to size, shape or location of the stone can be laid down as indicating any particular method. It is clearly evident that a stone in the cortex of the kidney, of whatever size, if causing pain, will be relieved only by the knife; likewise, a stone of large size filling the pelvis of the kidney is approachable only in this way. But when we omit these two, then, in our opinion, each case must be determined on its own grounds. There lies but one danger in cystoscopic manipulation in careful hands, and that is rupture of a seriously damaged ureter by the catheter, but this untoward accident is so rare as to make it almost negligible, nor is it necessarily of grave import when it does occur. In skilled hands the passage of the catheter into the ureter is practically devoid of danger, because the expert cystoscopist appreciates its possibilities and especially the excellent maxim of Keyes: "The cleaner you are the better, but the gentler you are the best."

The immediate danger of ureteral and renal stone is severe damage to the kidneys. by stasis or infection. The "alarming symptoms" mentioned by Keyes are due to these conditions, and it is obvious that we cannot subject patients in this critical condition to prolonged catheter manipulation, but it is likewise true that the stone causing this obstruction may be lodged just above a stricture that once dilated will permit its passage and allow immediate drainage.

The shape of some stones, however small, will occasionally prevent their passage even after manipulation, but in the case of a patient with stone in the ureter who is having only occasional attacks, Crowell has shown that the great majority can be removed by cystoscopy. The rationale of his method in the relaxation of the patient by an opiate, then the injection into the ureter itself, through the ureteral catheter, of some local anesthetic which will relax the ureter and permit the passage of a catheter or bougie, and often the injection of fluid or oil above the stone to facilitate its passage. Personally, we hesitate to use the metal dilators on the market, perhaps because of an inherent fear of dilating too suddenly a stricture which lies surrounded by vital organs and causing its rupture, but graduated silk bougies seem to offer a means free from this danger and to accomplish the same result.

The results of surgery of the kidney and ureter are still a matter of doubt, because we cannot guarantee a freedom from recurrence of an ailment whose cause is yet undetermined. Statistics here are of little avail, because they are incomplete, and the best preventatives are: thorough lavage of the kidney pelves, the use of much urotropin, large quantities of water ingested, preferably those free from mineral salts.

The conclusions that seem justified are simple.

(1) That the presence or absence of stone must be established only by thorough confirmatory evidence.

(2) That the procedure af choice in any case not positively indicated by the location and size of the stone, is cystoscopic manipulation, the persistence of this method being

dependent on the expediency demanded by the condition of the patient's bladder and the progress downward of the stone.

(3) Thorough lavage of the kidney and proper after care, following the removal of the stone.

THE DIAGNOSIS OF UROLOGICAL DISEASES.*

By Wm. T. Briggs, Lexington.

In urological, as in other diseases, incorrect and delayed diagnosis is usually due to an unwillingness on the part of the practitioner to employ, or have employed, methods which promise accurate results in the great majority of cases. And the practitioner who delays an accurate diagnosis of general diseases by not employing laboratory aid, is no worse than he who allows his patients with disease of the urinary tract to drift into chronic invalidism before employing methods which have made urological diagnosis more accurate than that in any field of medicine.

The purpose of this paper shall therefore be to outline and briefly discuss the methods of diagnosis without making any attempt to go into technical details such as would be expected were the paper only for urologists; and the paper will have served its purpose if it leads in any way to a better and earlier diagnosis.

Either consciously or subconsciously every diagnosis in this branch of surgery must pass through several different phases. The first, not unimportant phase, concerns the elimination of organs other than those constituting the urinary tract as the cause of the symptoms, while locating the exact site and nature of the pathology are other phases through which the diagnosis must pass before it can be exact.

The first phase will not be discussed here, since, however important differentiation from extraurinary disease may be, it can only indirectly be considered here. So taking it for granted that the urinary tract is diseased or must be excluded as a possible source of certain symptoms, what aids to diagnosis can we use. These we will first mention and then briefly discuss.

(1) Family history.
(2) Personal history.
(3) Present Illness.
(4) Physical examination.
(5) Urinalysis.
(6) Urethral instrumentation.
(7) Roentgen-ray.
(8) Examination with endoscopic instruments.
(9) Ureteral catheterization.
(10) Exploratory operation.

Since it is impossible in the time allotted to discuss in detail any one of these methods of diagnosis we shall only emphasize the most salient features of each method.

Much, for instance, could be written about the family and personal history, but here, so far as the former is concerned, it seems only necessary to call your attention to the familial tendency to certain diseases and diatheses such as tuberculosis and lithiasis.

In regard to the personal history, every effort should be made to obtain an accurate history of all previous infections, injuries and urinary disturbances. Previous infections, no matter how recent or remote, may explain etiologically urinary pathology. Here it might be mentioned that Hunner, of Baltimore, thinks ureteral stricture, with its train of symptoms not unlike those of ureteral stone, is often secondary to some focus of infection.

Trauma is often the cause of moveable kidney, hydronephrosis and perinephritic abscesses. That it might lower the resistance of the kidney and thus invite infection is plainly apparent.

Urinary disturbances in the past should be considered as having a close rather than remote relationship to the present illness, since no matter how much time has elapsed, a previous hemorrhage, renal colic, cystitis, or retention may be related to pathology now present.

.. *Present Illness*: In questioning the patient, our purpose should be to obtain an accurate statement in regard to the chief complaint, the date and mode of onset, the type, location and severity of pain, the frequency of urination by day and by night, and the presence of chills and fever; also whether there is urgency, incontinence, or stoppage of the stream.

Pain may point unmistakably to the urinary tract, or it may mimic closely that seen in disease of the gall bladder, the appendix, or other abdominal organ; it may even affect the extremities. On the other hand, pain in the renal area occasionally occurs in prostatitis and vesiculitis. Sciatic pain may be treated as sciatica when the true cause is prostatic cancer. Pain in the glans penis occurs in low ureteral stone as well as in vesical calculus and may be present in prostatic disease and trigonitis. Pain may be felt on the healthy side when the other kidney is involved, the so-called reno-renal reflex, and may be felt in hypertrophied kidney.

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Almost any renal or vesical pathology may cause frequent urination, so its presence simply suggests the upper urinary tract; but it is well to remember that it is more noticeable at night in early renal tuberculosis, prostatic hypertrophy and pyelitis. On the other hand, in vesical calculus and stricture, the frequency is more apt to be worse during the day. Pain may or may not be an accompanying symptom. A history of painless hematuria, even though it extends back for years, should make one think of urethral, vesical or renal tumor. It may also occur in calculus, essential hematuria, stricture of the ureter or urethra, and in prostate hypertrophy. It is not a common symptom in prostatic cancer except in the later stages and then pain is apt to be an important symptom. Hematuria, accompanied by pain or renal colic, may mean stone, tumor, tuberculosis, or even hydronephrosis, or it may mean stricture or stone of the ureter. Hematuria calls for a cystoscopic examination in all cases where the origin of the hemorrhage is not definitely known. It is best to examine such cases while bleeding.

Physical Examination: The physical examination should be general as well as regional, but only the regional will be considered here. Tenderness in the renal area is probably more significent than tumor, since tumors apparently renal often prove to be some other organ. On the other hand, dystopic and floating kidneys can easily be confused with other abdominal and pelvic organs. Movable kidney is so common that little significance can be placed on such a finding unless there are other evidences of pathology. In pyonephrosis and tuberculosis, a thickened ureter can often be felt through the rectum or vagina and occasionally ureteral stones are felt in the same way.

In women, bimanual examination should always be made to detect disease in the uterus and adnexa, prolapsus, etc., but too much importance should not be placed on pelvic pathology as a cause of urinary symptoms. The bladder adjusts itself remarkably well to changed conditions and most tumors and malpositions of the uterus are unassociated with vesical symptoms. Diverticula of the bladder are sometimes easily felt and may be mistaken for abdominal tumor, and because it often causes the same symptoms, can be confused with prostatic hypertrophy.

In the male, a sudden non-specific epididymitis should suggest stricture, prostatic disease or ureteral stone. A varicocele of short duration should always lead to an examination of the kidney for tumor.

Rectal examination with a woven catheter in the prostatic urethra is the best way to diagnose cancer of the prostate, since cancer usually originates in the posterior lobe. The catheter is plainly felt in benign hypertrophy, and fibroid prostates, indistinctly or not at all in cancer. At the same time the length of the urethra and the residual urine can be measured. In some cases of hypertrophy, bimanual examination is very satisfactory.

Normal seminal vesicals are hard to outline, but those inflamed or the seat of tubercle or cancer are easily felt. Pus massaged from the vesicles and prostate means infection and may explain obscure joint conditions and an irritable bladder.

Urinalysis: The characteristics of the urine in urologic diseases are too well known to require any discussion here. A few points, however, I would like to emphasize. The simple two glass test is often invaluable in excluding the upper urinary tract and prostate as the seat of disease. If the trouble is confined to the anterior urethra the second glass shows clear.

Female patients should always be catheterized, since not only is the urine satisfactory for laboratory examination but even with the ordinary glass catheter fibrosis and stricture of the urethra can be detected and both of these conditions are far commoner than is usually thought; furthermore, if the symptoms are due to caruncle, inflammatory papilloomata or acute specific urethritis, the diagnosis is made at once.

The daily quantity of urine is apt to be high, the specific gravity and urea content low where there is renal involvement and it makes little difference whether the trouble originated in one of the kidneys above or is secondary to obstruction below.

Albumin is relatively high in renal compared to vesical disease, but may be absent in a mild pyelitis and rather strongly positive when the trouble lies only in the bladder, provided there is much pus and blood. In many cases, especially in women, when the absence of systemic symptoms favors a vesical infection, it seems perfectly justifiable to administer urinary antiseptics and irrigate the bladder on several successive days before using the cystoscope. If the infection does not markedly diminish or disappear after several treatments, cystoscopy should be performed. This is sometimes permissible in a suspected pyelitis, though bladder irrigations are seldom indicated. Such cases should be dismissed only when the urine is negative on culture rather than when symptoms are relieved.

Pus or pus and blood in a urine showing no bacteria and negative to culture should lead one to suspect renal tuberculosis. Such cases should be cystoscoped as soon as possible.

It is noteworthy that renal and ureteral pathology may be present when the urine shows no blood and is practically negative. (1) For instance, Cabot reports 150 cases of ureteral stone in 14 per cent of which there was no blood; Braasch and Moore report 294 cases, 20 per cent of which showed no blood; while Hunner reports 50 cases of ureteral stricture in 50 per cent of which there was neither pus nor blood. It is a well known fact that because hydronephrosis often causes no change in the urine, many useless abdominal operations are performed. In cysts of the kidney and in polycystic disease the urine usually remains clear and because of the low specific gravity, the enlarged heart and high blood pressure in polycystic kidney, the condition is often mistaken for chronic nephritis. During the interval between hemorrhages the urine from a neoplastic kidney may be normal.

Urethral Instrumentation: So many pathology conditions of both the upper and lower urinary tract may result from stricture in women as well as men, that it is hardly necessary to state the importance of testing the urethra for this condition.

Roentgenography: Of course the greatest field of usefulness of the x-ray is in calculus disease, but characteristic shadows are shown in about 20 per cent of tuberculous kidneys and in a smaller percentage of pyonephroses. Pathology of the kidney without urinary symptoms is not especially infrequent, so in all abdominal cases when the diagnosis is obscure, radiograms of the urinary tract should be made before operation. Negative plates, even when technically good, do not exclude stones, especially those in the lower ureter and bladder, for experience has taught that fewer stones are missed in the kidney than in the other parts of the tract. Shadows cast by phleboliths and calcified glands are proven extraureteral by stereoscopic plates with leaded catheters in the ureter. As an aid to operation it is often of value to know whether a stone is in the cortex or pelvis of the kidney, and this con often be determined by pyelography, since the shadows of cortical stones are not changed in the least by the pyelographic medium. Occasionally stones previously missed show after pyelography, owing to the coating of the stones with the shadow-casting fluid. Pyeloureterograms not only show strictures, kinks, stones, and dilatations of the ureter, but are of great aid in diagnosticating tumors of the kidney, pyo and hydronephrosis. In tumors the pelvis is often encroached upon and sometimes twisted on its axis, while in pyonephrosis the radiogram shows the fluid in the cortical part of the kidney.

With cystograms, a diagnosis of vesical diverticula is often possible when cystoscopy is unsatisfactory, and in cancer of the bladder a filling defect can often be seen at the location of the tumor. This is often of great aid since many of these cases reach the urologist when cystoscopic examination is very unsatisfactory. Cystograms may show a marked vesical projection as well at dilatation of the prostatic urethra in hypertrophied prostate.

As mentioned previously, carcinoma of the prostate is best diagnosticated by rectal touch, but it occasionally simulates prostatic calculi. In such cases the x-ray is of double service, since it not only eliminates prostatic calculi but at the same time shows any metastasis of cancer to the lower vertebrae.

Radiograms made after the vasa deferentia are injected give a fairly good idea of the amount of inflammation present.

Examination with Endoscopic Instruments: Through the urethroscope ulcerations, urethral abscesses, infiltration, strictures, and tumors can be seen and treated. Foreign bodies which have not passed entirely through the compressor urethrae can often be seen and removed. In the posterior urethra changes in the verumontanum, the prostatic and ejaculatory ducts, can be seen and treated by topical applications. Congenital and acquired diverticula may be found to account for persistent intractable symptoms.The various changes at the vesical neck can be clearly seen through the urethroscope but as a rule the close vision cystoscope shows these changes very well. "A satisfactory cystoscopic examination should show everything that could be seen were the bladder opened for operation. For instance, the condition of the vesical mucosa, the presence of ulcers, incrustations, diverticula, stones and tumors. As a matter of fact, many tumors are seen better through the cystoscope than when the bladder is opened, since they float and wave in the fluid instead of being pressed against the bladder wall. The ureteral openings oftentimes show at a glance that there is pathology above, as when one or both are dilated, infiltrated, ulcerated, edematous, or retracted. If only one ureteral opening is seen, even after indigo-carmin has been injected, it is well to hesitate before doing a nephrectomy. Bloody urine seen issuing from the ureter means more toward localization of pathology than weeks of trying to guess the origin of hemorrhage by worm-like clots, large clots, or whether there are no clots at all, but simply a thorough admixture of urine and blood. Cystoscopy alone or combined with ureteral catheterization is likewise the best, quickest and most accurate method of determining the origin of pus.

Ureteral Catherization: Is useful when we wish to collect separate urines for examination from the kidneys, in the diagnosis of ureteral stone, and as an aid to nature in expelling the same. Catheters or bougies are used to dilate strictures, and of course, catheters must be used in making pyeloureterograms. By the separate urines the relative function of the two kidneys can be guaged as well as the unilateral or bilateral presence of pus, blood, albumin and infection. The intravenous injection of phthalein is perhaps the most satisfactory and widely employed test of function. It appears from normal kidneys in from two to six minutes and usually a normal kidney will excrete one per cent per minute for the first fifteen minutes. Oftentimes there is leakage into the bladder around one or both catheters. The inaccuracy of the test can in such cases be largely overcome by measuring the amounts of urines collected from each kidney, reading the percentages of phthalein and in that way tell how much phthalein is present in each cubic centimeter of urine. Another check on the phthalein is the relative per cent of urea from the two sides. When one side is badly diseased, the healthy side often shows an increased function, but even when the function on the uninfected side is below rather than above par, it often increases after the diseased kidney is removed, simply because the systemic toxemia is relieved.

In hydronephrosis, the drainage through the ureteral catheter is often continuous instead of intermittent and pressure over the kidney may increase the flow. If the renal parenchyma is atrophied the function will be less than that of the healthy side. In neoplasm the function may be, but usually is not, normal.

Having collected the two urines separately it is usually easy to differentiate pyelitis, pyelonephritis, pyonephrosis, tuberculosis and other pathological conditions. (2) Keyes has lately advocated the routine use of wax tipped catheters, having proven to his own satisfaction that the marks from the cystoscope are easily differentiated from those caused by ureteral stones. The technical difficulty as well as the increased trauma has heretofore prevented the routine use of the wax bulb except through the Lays and Kelly endoscopic instruments, but by following the lead of Keyes, we can all hope to avoid some of the errors made in the past when we relied too much on radiograms.

Exploratory Operation: Except in children and in the few cases where the condition of the bladder will not permit cystoscopy, exploration is rarely necessary and usually unsatisfactory. No operation should be performed until every resource of diagnosis has been exhausted. In such cases, and such cases alone, is exploration justifiable.

In conclusion it is only necessary to add that much chronic invalidism could be remedied were these methods employed early, rather than months or years after the beginning of symptoms.

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THE DIAGNOSIS AND PATHOLOGY OF BLADDER TUMORS.*

By Herbert Bronner, Louisville.

There is probably no condition of the Genito-urinary tract which is receiving more attention at the hand of the urologist today than bladder tumors. The field of operative procedure in handling bladder tumors is ever on the increase, so that today it extends from the removal of a small growth by means of the operating cystoscope after the method of Nitze, to a complete cystectomy with accompanying bilateral nephrostomy after the method of Watson. The armamentarium for handling these growths is therefore becoming more and more satisfactory.

We know that in benign papillomata the method of election now is the high frequency treatment either by the Oudin or D'Arsonval current. The results obtained by this method in most cases is so far superior to any cutting operation that there can be no doubt as to what method one should employ. In certain papillomata, especially of the malignant type, a combination of fulguration and radium has been suggested. It has been found that in cases which resisted fulguration for a long time, responded to this procedure after a few applications of radium. Geraghty especially lays stress on this point. Corbus and Thomas believe that radium should follow the use of the high frequency, even if every vestige of the growth has disappeared.

In the carcinomata which are diagnosed early and which are favorably situated, a radical resection should be performed as fulguration does not cure this type of cases.

In the malignant growths which are unfavorably situated, such as those on the trigone and vesical neck, some advocate a cystectomy preceded by a bilateral nephrostomy. Others advocate a less formidable procedure consisting of suprapubic cystotomy, intensive high frequency, the so-called diathermy of Kolischer followed by radium.

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In that class of cases which is beyond any hope of cure, we must at times resort to a palliative operation. This may consist of cystotomy to deviate the urinary stream, accompanied if necessary by the use of fulguration and radium if the hemorrhage is profuse. Watson has suggested a bilateral nephrostomy in some of these cases.

From this short resume on treatment it can be seen that we are beginnig to crystallize our opinions as to the best method to employ in certain types of growths. These facts being true, the question arises: what more can we do to get better results in this serious condition? The answer assuredly is to make a very early diagnosis so that these various methods may be applied more promptly and before the growths have often become hopeless from a curative standpoint.

The crux of the situation seems to be early diagnosis. The truth of this statement comes home very forcibly when one reviews briefly the statistics on the malignancy of bladder tumors. Between seventy and eighty per cent of all bladder tumors are conceded to be malignant. Young, in a study of one hundred and seventeen cases found eighty-three per cent malignant; Albarran, in a study of eighty-eight cases found sixty-eight carcinomata; O'Neil, in a study of cases at the Massachusetts General Hospital, found seventy per cent malignant. It is unnecessary to multiply these figures. Not only are nearly eighty per cent of all bladder tumors frankly malignant, but the remaining twenty per cent are potentially so, that "if allowed to remain untreated, a great proportion will undergo malignant changes, while if they are removed inadequately and then return, the recurrences are more than likely to show malignancy. And even if the tumor be not malignant, originally, or if it does not become malignant, if allowed to remain it will gradually produce death by hemorrhage or sepsis, so that as Chute points out, it is at least clinically malignant. We are therefore prepared for the statement of Albarran: "All vesical tumors are malignant or likely to become so;" and almost for that of Clado: "Recurrent tumors following upon removal of benign papilloma are always in the form of malignant epithelioma."

We must endeavor, therefore: First, to make a diagnosis of the presence of the tumor as soon as possible, and, second, to determine as accurately as possible as to the pathology of this tumor before the operative procedure is decided upon.

We will not burden you with the usual hackneyed classification of bladder tumors, but rather try to bring out some of the more practical points in the determination of the pathology of these growths. The tumors which are usually seen are the papillomata, carcinomata, and occasionally a sarcoma. The other growths are seen so rarely as to not merit attention here.

The methods which are now employed for the determination of the pathology of a growth are histological examination of a portion of the growth, cystoscopic examination, the response to the high frequency or fulguration treatment, and palpatory examination.

As to the first method: Histological examination of a portion of the growth. Pieces of the growth may be removed by means of a Buerger forceps or Young's rongeur or some similar instrument. The efficacy of this method is still somewhat a subject of argument. Buerger claims that in nearly every instance he has been able to determine the malignancy or non-malignancy of a growth by a careful study of the material removed through his operating cystoscope.

Beer, the father of high frequency treatment, also lays great stress on this method. In eighty-four cases of neoplasm in which he had notes, he states that fifty-one were examined microscopically and in many of these the microscope verified his suspicions of malignancy, while in a smaller series it upset the clinical impression obtained by means of cystoscopic examination.

One of the difficulties of this method, however, lies in the fact that while the periphery of a tumor may be benign in character, its base may be distinctly malignant. Therefore, if the portion removed for examination is only superficial, a mistake may readily be made. In order to obviate this, Beer suggests that after burning off the surface growth with the high frequency, a specimen from the deeper portion be obtained. In order to give an opposite viewpoint from that of Buerger, let me quote the exact words of Hugh Cabot: "I do not know whether or not it is equally true in other fields, but it seems to me that in urology the pathologist has been a source of trouble for years. We find in clinical experience that patients do not die of malignant tumors sometimes, and do die of non-malignant tumors. While we may be interested in knowing what the pathologist's opinions are, as shown by the microscope, the thing that the patient is interested in is what is going to happen to him; and that is not discernible from the report of the pathologist."

The second method mentioned was cystoscopic examination. No cystoscopist would be foolhardy enough to state that he could invariably determine the nature of a growth by means of the cystoscopic picture. However, there are certain appearances which are always highly suggestive and a few pictures which are unmistakable.

Tumors that are distinctly villous and pedunculated are more likely to be benign; while sessility should always put us on our guard for malignancy. The picture of a fairly advanced carcinoma is unmistakable. It presents itself as a broad-based, sessile, hard infiltrating mass. It is not freely moveable on the bladder wall and is liable to be ulcerated.

Most urologists today recognize certain features as suggestive of malignancy. These are hardness of the mass, intractable cystitis, a tendency to ulceration, sloughing, necrosis or persistent incrustations and multiplicity of the growths. As to the last point, we have seen several cases where multiple growths responded to the high frequency treatment and were apparently benign. It is often difficult to recognize early malignancy, as these growths may simply show as "little raised rough surfaces," or "slightly raised velvety plaques." The eye of the cystoscopist may not be able to determine as to the differentiation of benign and malignant papillomata. The former is, however, more likely to have long, fine villi and a slender pedicle, while the latter is more liable to have short villi and be sessile. In many cases it is impossible to see the base of a tumor on account of the exuberance of the growth, which, of course, adds to the difficulty.

By palpation, whether rectal, suprapubic or bimanual, we are often able to determine the malignant character of a growth. If on rectal palpation, we find the base of the bladder distinctly infiltrated, we are sure of the presence of a malignant growth and, incidently of a most unfortunate lesion to deal with.

The latest method of deciding the pathology of a growth is its response to the high frequency current. There are those urologists who believe that neither the eye of the cystoscopist nor the eye of the pathologist can be relied upon to tell us the nature of a growth, but that the most reliable test is the response to the high frequency. Keyes, Jr., states that the clinically malignant tumor is the tumor which is not curable by the electrical treatment through the cystoscope. The method of procedure, therefore, unless the tumor be frankly malignant, would be to use the high frequency treatment. If the tumor did not show evidence of a ready response to treatment, it is to be regarded as malignant and handled accordingly.

DIAGNOSIS:

Many lesions of the genito-urinary tract have some symptom which is highly suggestive of its presence—for example—bladder tuberculosis has vesical irritability; calculus, frequency and haematuria relieved by rest; obstructing prostate, nocturnal frequency. And so, with bladder tumor, the distinctive symptom—the "hall mark," as Fenwick puts it—is painless haematuria. Whenever the patient presents himself with this symptom we should immediately suspect tumor. In fact, we cannot emphasize too strongly the point that every patient with haematuria should be regarded as having a serious lesion, until the contrary has been proven. Incidently, it may be stated that the discovery of the source of bleeding is *not always* an easy task and may require most careful and prolonged study, including several cystoscopic examinations, to determine the exact source and pathology.

The chief characteristic of the bleeding in bladder tumor is the fact that, as a rule, it is painless and not influenced by either motion or rest. We have seen cases where bleeding occurred on first arising in the morning. At first this bleeding is decidedly intermittent, months and even years intervening between the attacks of bleeding; eventually, however, especially in malignant cases, the attacks of haematuria come closer together, until finally the bleeding is continuous.

The bleeding may consist of only a few drops at the end of urination. Quite recently we saw a man who consulted us for an anterior urethral discharge, purely mucoid in character. Incidently, he mentioned a slight terminal haematuria. Cystoscopy showed a very beautiful villous growth to the right of the right ureteral orifice, which responded to two high frequency treatments. At other times the entire urine will be bloody, with a tendency for the last drops to be more distinctly so. Where infection has taken place, the urine has a brownish, syrupy appearance. This is especially found in malignant cases with severe cystitis. The amount of hemorrhage does not necessarily depend on the size of the tumor, very profuse hemorrhages may take place from small tumors and vice versa.

While the first symptom in the majority of cases is haematuria, this is not invariably so and we believe that this is an important point to be remembered. We have had several cases where frequency and pain preceded haematuria. In two cases which we reported in November, 1914, where the high frequency treatment was used, pain and frequency were the first symptoms.

In one case frequency started three years before bleeding, and in another, six years. In another case of advanced malignancy, diurnal and nocturnal frequency and burning pain preceded haematuria by one year.

Frequency and pain are more likely to occur first in those cases where the growth has its origin near the sphincter and hence overgrows, overlies or presses on the urethral orifice. We have seen several cases where the growth acted like an obstructing prostate.

Albarran found in a study of sixty-two papillomata that haematuria occurred first in fifty-seven cases and urinary disturbances in five cases; in a study of one hundred carcinomata, haematuria occurred first in seventy cases, and frequency and pain in thirty cases.

Fenwick found that in benign growths, urinary frequency and pain appeared first in eight per cent of cases, while in carcinomata, haematuria occurred first in seventy-six per cent of cases, and urinary disturbances in twenty-four per cent.

Even where the original symptom is haematuria, when once cystitis has been ingrafted on this lesion, frequency and pain rapidly supervene. The cystitis accompanying bladder tumor, especially of the malignant type, is particularly intractable, and adds much to the misery of the patient. The frequency, pain and tenesmus become very exhausting. Pain may also occur from a blood clot plugging the urethral orifice.

In infiltrating tumors or excessively large growths, bladder capacity may be decidedly lessened, causing increased frequency.

Tumor in the vicinity of the urethral orifice may cause a hydronephrosis and if infection be present, eventually a pyonephrosis with its train of symptoms.

While the history of the case and the symptomatology may be highly suggestive of the diagnosis, in the end the absolute diagnosis must be made by the cystoscope. This is all the more true when we remember, as before stated, that in a certain proportion of cases, haematuria may not be the first symptom. Not only in all cases of haematuria, but in all so-called inveterate cystitis and, in fact, in all unexplained bladder conditions, the cystoscope should be resorted to.

The cystoscope may be used in practically all cases of bladder tumors provided the care and gentleness which should accompany all intra-vesical manipulations be employed.

It might be well to mention the difficulties which are encountered. Excessive hemorrhage is the first. This may be overcome by working gently and expeditiously and not using too much medium. If necessary, adrenalin may be introduced beforehand. It rarely happens that this complication cannot be overcome by using continuous irrigation.

Severe cystitis is an annoying complication, both by reason of the intolerance and the clouding of the medium. By employing sufficient anesthesia and plenty of irrigating fluid this may be overcome.

Infiltration of the wall in malignant cases and excessively large growths furnish further complications which may be overcome by proper care.

By means of the cystoscope we should determine not only the presence of the tumor, but also the number, the location, the extent, and as far as possible, the pathology. The larger number of tumors are found in the vicinity of the ureteral orifice, either in the base or lateral walls, although tumor may be found anywhere in the bladder. We know of no more striking cystoscopic picture than a single, well developed villous papilloma. Once having been seen, it is a picture which is never forgotten. A bladder full of growths, especially if these growths have become infected and are covered with muco-pus, does not give so typical a picture.

We have had two cases where the bladder was practically full of papillomatous masses. Occasionally one sees a case where there is a single large growth and also a number of very small growths—"splashings" or "tuftings," according to Fenwick. In the early part of this paper we spoke of the appearance of the infiltrating type of carcinoma.

There are a few conditions which may simulate tumor and prove a pitfall for the unwary. If the bladder be improperly distended, the folds and rugae of the mucous membrane, especially in an infected bladder, may simulate growths. This error may be obviated by proper irrigation and distention.

An organized blood clot has not infrequently been mistaken for a tumor. If irrigation does not clear up the diagnosis, a second cystoscopy usually will. Occasionally a middle lobe of the prostate and a few extra-vesical conditions may be confusing, but careful examination will eliminate these.

Another method of diagnosis is the use of the cystogram, made either with air dilatation or with some solution such as sodium bromide, thorium, bismuth or a combination of air with one of these solutions.

Mellon says that, "one should take an air cystogram first, then fill the bladder with sodium bromide solution, either fifteen or twenty-five per cent, and take a second picture; and lastly, take an immediate picture after emptying the bladder."

It is claimed for the cystogram that it gives one the size, shape and location of a tumor. Personally, we would rather rely on the cystoscopic picture than on the information obtained by a cystogram.

CONCLUSIONS:

1. Bladder tumor is one of the most serious genito-urinary conditions confronting us today.
2. These tumors are either frankly malignant or potentially so.
3. In view of these facts, haematuria, especially of the painless variety, should be regarded as a dangerous condition until proven otherwise.
4. Prompt cystoscopy should be resorted to in all such cases in order to make an early diagnosis.
5. Before deciding on the best operative procedure, we should endeavor to determine the pathology by histological examination, cystoscopic picture, results of high frequency treatment and palpatory signs.

DISCUSSION:

Claude G. Hoffman, Louisville: These papers have been very interesting, and the authors have thoroughly gone into their subjects. As I remarked to Dr. Bronner, a moment ago, the papers are so complete there is little left to be said.

Urological diagnosis must be based largely on cystoscopic, microscopic and roentgen-ray findings. In skilled hands by these methods, singly or in combination, practically all urological pathology can be diagnosed.

In urinalysis too much stress cannot be placed upon the value of microscopic examination to determine the bacterial and pathologic content of the urine. The location of the pathology can oftentimes be determined from the characteristic appearance of the epithelial cells.

With the cystoscope practically all abnormalities of the interior of the bladder can be seen. With ureteral catheterization the kidney pelvis can be injected for lavage or pyelogram; the wax-tip bulb catheter can be used in searching for calculi and ureteral strictures; separate specimens of urine can also be obtained for culture, microscopic examination and functional test.

Roentgen-ray investigation is suggested in all cases where calculi are suspected in the genito-urinary tract, but, as stated by the essayist, "it is not 100 per cent perfect." However, in vesical lesions, such as diverticula and tumors, where cystoscopy is impracticable, a cystogram is the proper precedure.

A combination of cystoscopic and roentgen-ray investigation is oftentimes extremely valuable, because, while lesions of the genito-urinary tract may be suspected, they may not be shown by the x-ray alone. For example: with a pyelogram, or with leaded catheter, angulations and strictures of the ureter, neoplasms, calculi, pyonephrosis, displaced kidney, etc., can be discovered, whereas they would not be shown by the roentgen-ray alone.

The three most important clinical symptoms in urological diagnosis are: pain, dysuria, and polyuria. The pain may be abdominal, lumbar, inguinal, rectal, perineal or genital. Sometimes pain radiates downward along the sciatic nerve. This may seem to cover a large anatomic area, but it must be remembered that a snap or hasty diagnosis may lead to an erroneous conclusion.

As Dr Grant stated in his paper, patients have been sent to the Louisville City Hospital with a diagnosis of calculi in the genito-urinary tract. A dose of castor oil caused all the symptoms to disappear.

There is another important point I wish to mention, which was not discussed by the essayist, and that is the advisability of lumbar puncture. We know that tabes is not an infrequent cause of urinary disturbances. This procedure is resorted to as a routine measure by some men as an aid in making the diagnosis.

The most common variety of vesical papilloma is the villous type which cannot be mistaken when once seen. In this type of tumor the villi spring directly from the vesical mucosa like a tuft of grass from a circumscribed base. The sessile type of tumor infiltrates the mucosa and is undoubtedly malignant. But there is one type which is hardest to diagnose, and that is the papillary carcinoma with a non-filtrating, movable base. It is a pedunculated tumor, the pedicle coming with the mucosa, the villi springing from the tumor or from the pedicle itself.

The histologic examination of these tumors is unsatisfactory at times because sections taken from the surface of the tumor are benign in character, when the interior or base of the tumor may be malignant, and vice versa.

Dr. Grant spoke of gentleness in urethral instrumentation: That is a feature which cannot be too strongly emphasized. I think gentleness is not natural with most of us; I do not believe it is acquired; it is born in us; and what may seem gentleness in one case may seem roughness in another.

In some inseances after urethral instrumentation the patient will have chills and reactions when manipulation has been absolutely gentle. In others practically anything can be done in the way of examination without causing any trouble.

George H. Day, Louisville: As urologists, I think we meet with two classes of cases, those that have been diagnosed early, and those that have not been diagnosed at all. In my opinion there are no cases in medicine or surgery that offer such brilliant results as do these urological cases in which an early diagnosis is made. Neither do I think anything offers as brilliant results as the smaller stones in the ureter and so-called bladder tumors.

I believe that every man who practices medicine, and surgery in particular should avail himself of the cystoscope for diagnosis. I also believe every man and woman should be Wassermannized routinely. I think until proven otherwise every patient should be put in the class of malignancy and syphilis. It has been my experience that these two classifications offer the worst results we have today, and if we can overcome these things we will get better results.

These three papers have been most timely, and I have enjoyed them very much.

Homer G. Hamer, Indianapolis, Indiana, (by invitation): It is a great pleasure to me to be with you, and especially to have listened to three such excellent urologic papers. I have been greatly impressed with each and every one of them.

As to Dr. Bronner's paper on papillomata of the bladder, I agree with him in every detail. The question of diagnosis of malignancy naturally becomes uppermost when we find a papilloma of the bladder. Dr. Bronner has presented very clearly the diagnostic side of the subject, in that we must rely upon the histologic findings, on the cystoscopic appearance, on the palpatory evidence, etc. The symptomatology helps. It seems to me, that a painless hematuria is a suggestive symptom of bladder tumor or tumor in the urinary tract; so is bladder irritability in connection with bladder tumor suggestive of malignancy. I refer to irritability in degree from a moderate irritability up to severe pain with violent cystitis.

I do not agree with some of the advanced ideas expressed in some of the literature of the present day regarding the use of radium in every instance of bladder tumor regardless of the fact that it may disappear readily upon the application of fulguration treatment. However, I have been greatly surprised, agreeably so, at the manner in which these apparently malignant papillomas disappear under the use of radium. Whether they recur as promptly as they do after the fulguration treatment alone, I am not prepared to say. However, radium treatment is so much in its infancy that perhaps we had better reserve our opinion about it until we have had more experience.

In the diagnosis of renal calculus I was quite interested in Dr. Grant's recital of the seven cases which came into the hospital, and only one of them was found to have had stones, but had been diagnosed as renal colic. It brings to my mind numerous errors in diagnosis, or the difficulty of diagnosis of supposed renal calculus, where the leading symptom is colic. We frequently have patients presenting such symptoms coming for diagnosis, and we are unable to demonstrate by any of the methods enumerated by Dr. Grant that a stone is present. In other words, negative to all of the tests applied. In times past we have been foolish enough to make the statement that there is no stone present, but have been greatly chagrined to have a patient write to us a few days after they have gone home, or their doctors write that a stone was passed two or three days after our examination. That emphasizes the fact that there are a large number of calculi the composition of which interferes with a positive diagnosis by radiographic methods. The wax tip method is not infallible. Geraghty has called our attention to the fact that a stone may be lodged in one of the calices and by the process of manipulation with the ureteral catheter and lavage of the kidney the stone is brought into the pelvis of the kidney and passes spontaneously, a stone which we are unable to demonstrate by the x-ray or by the wax tip catheter.

Henry O. Mertz, Indianapolis, Indiana, (by invitation): I wish to heartily second what Dr. Hamer has stated relative to the pleasure we have of being here. I am very glad we have had the opportunity of listening to the papers that have been presented this morning. Any discussion that I will make relative to what has been said will be limited very much to little details of the technic. I hardly think we are appreciating enough the real value of slight irritability of the bladder, or of intolerance of distension of the bladder in our differentiation between a benign and a malignant growth of the bladder. I think that it is of more real value and should be taken into consideration probably more than we are inclined to do. We think of it as an intolerant tenesmus that is indicative of a malignant change. This is of vital importance to a patient who has tumor in the bladder because, according to the more recent literature, there is a tendency in certain fields to attribute malignant changes in a previously benign papilloma to the too frequent applications of the high frequency current. Whether this be a correct observation or not, of course it is very difficult to say because, as the doctor pointed out, it is impossible for us to say that such and such a tumor is benign or malignant. But the fact that such an observation as this has been made, has suggested in the minds of a few operators that our technic should be varied slightly in treating papillomata of the bladder in general. If we have a bladder tumor in which we have some intolerance of distension, in which there is some irritability of the bladder as has been suggested, we do not wait and treat this intermittently at varying intervals but give the patient an anesthetic and do a complete general fulguration until the tumor is entirely destroyed at one seance, following this later with application of radium.

I was very much interested in the paper on tumors of the bladder, and I am very glad I had the opportunity of listening to it.

Dr. Grant in his paper made the statement that he had had a number of cases appear in one week with renal colic in which there was but one case showing calculus. This shows that the clinical diagnosis of the lesion was at fault. However, I might suggest that possibly when these cases were examined by a urologist there were a certain number of them in which the exact lesion was not determined. All of this is the result of our plan in the past few years is asking the internist and general practitioner to refer these cases to us early, and they are doing so, and because we are finding a normal pyelogram, or because we are finding a normal ureterogram, without anatomical variation, without any distension or distortion of the ureter or the pelvis, we are unable in fact to make in many cases a definite and accurate diagnosis. It suggests that there is still room for a great deal of improvement in our own efforts at identifying this type of lesion; I mean intermittent stasis of the type which gives us the clinical expression of a foreign body in which all our methods have failed to detect it, and in which our examinations made at intervals are negative.

J. P. Keith, Louisville: I did not hear the paper of Dr. Briggs. Dr. Bronner's paper on tumors of the bladder I should like to discuss for a moment. In his resume of the statistics it was granted that in the lowest statistics he gave, 58 per cent were malignant; that all the others were potentially malignant. Then the question of treatment comes up, and as stated by Dr. Hamer, it is a question which, at present, is not in the final stage, but is given up by men who have done the most of this work: That it is best to approach a case of malignancy either by fulguration, followed by radium, or radium alone, believing that it is indicated by the conditions found. The question arises, and is at present a somewhat mooted one, as to whether all tumors of the bladder should not be given the benefit of a doubt by treating them with radium, as it seems to be accepted by most men that probably this offers the best treatment today. In view of the fact it is granted that all tumors of the bladder are potentially malignant, it seems that the rational conclusion would be that probably the best treatment today is with radium; also perhaps a combination of radium and x-ray.

As to Dr. Grant's paper, I agree with him thoroughly that the roentgen-ray is not 100 per cent perfect nor are the methods of determining stones in the upper urinary tract. I suppose Dr. Grant has had, all of us have had, troubles in this line. I would like to say to the general practitioner that cooperation with the urologist and the roentgen-ray man can give us the best results. In other words, so many of our patients become impatient at the different procedures that are necessary to make a diagnosis in these cases. I do not believe that any attempt at diagnosis should be made in these cases without a thorough preparation of the patient, as this will often lead into error, and in mentioning errors in diagnosis I do not believe Dr. Grant called attention to the fact that often a good purgative will remove stones in the upper urinary tract. We have had an instance of that the past week, in which case a shadow was seen, and if you had been compelled to say yes or no, you would have had to say yes. A large stone about the size of the end of the little finger was found in the ureter. A good purgative and an enema were given, and the next day there was a negative diagnosis in this same patient. These are the things concerning which we would like to get the cooperation of the family physician this work as well as that of the patient, in order to give us time to do all the work necessary because it is a very serious thing to operate for the removal of a stone in the upper urinary tract and find nothing.

Edward R. Palmer, Louisville: I think the society is to be congratulated on these three most excellent papers. They have covered the whole field of urology.

In reference to Dr. Briggs' paper: I would only make a slight remark in regard to the two glass test in examining the urine. We must remember that this is not infallible; that where, of course, there is a considerable amount of secretion, and the first urine is cloudy and the last urine clear, we are justified in considering the lesions anterior to the cut-off muscle; but where the lesions are few, where the amount of material in the urine is represented by a few shreds and a small amount of pus, it is impossible to state ordinarily where the lesion is by this test.

As regards the papers of the other two gentlemen: I had the pleasure of being associated with them during the month of August as visiting surgeon on the urologic staff of the Louisville City Hospital, and wish to compliment them an the very high class of work they are doing in that institution. Dr. Bronner is an expert, so is Dr. Grant, and they handle their work in a very efficient manner.

There is one point I wish to mention in connection with Dr. Grant's work which was forcibly brought to my mind: We had during my service there quite a number of patients who came in with the provisional diagnosis of renal or ureteral calculus, and on examination of these by means of the ureteral catheter and radiograms, and so on, we were absolutely unable to detect any such foreign body. There was one case particularly in which, when I first attempted to introduce the ureteral catheter, it passed upward three or four centimeters then came to a stop, and with all the careful persistence I could use I failed in getting the instrument to go any farther. A few days later Dr. Grant attempted on the same patient to pass olivary ureteral bougies, but on account of trouble with the light of the cystoscope he failed. Then he and I together tried again and we passed the catheter the distance it had gone before, and injected a two per cent solution of cocaine. In a short time after that the catheter slid smoothly past the obstruction. We had a radiogram of the case, and if I am not mistaken it showed a possible calculus in that particular region.

These papers are most excellent, and the society is to be congratulated on having heard them.

Carl Lewis Wheeler, Lexington: This morning we have listened to three most excellent papers. Dr. Briggs has presented a paper in which he entirely covered the subject. Dr. Bronner's paper on the diagnosis of bladder tumors is an excellent one. The more I see of bladder tumors, the more I am convinced that the diagnosis depends upon the "man behind the gun." Scalpel surgery in tumors of the bladder is passing, since we have fulguration and radium.

The etiology of stone in the upper urinary tract does not concern us when we are called to see patients presenting definite symptoms.

We are willing to admit that it "Just Growed," as Dr. Grant has expressed it.

But the question which does concern us most seriously. Is it there, and how can we prove it?

A primary stone in the kidney is an act of God—but a secondary stone is an act of man.

A stone in the kidney causing mischief will always show some manifestations in the urine, such as red blood corpuscles, pus corpuscles, epithelia characteristic of its location, and some of these epithelia will contain endogenous new formations denoting irritation and pressure; some connective tissue shreds and some bacteria.

This, however, is not sufficient to warrant a diagnosis of stone, but enough evidence to arouse our suspicion, and especially so if we find crystals of uric acid present, **not the lozenge or comb and brush variety,** but a peculiar variety of spicules and stellate masses which is indicative of stone; or else may be seen crystals of cystine or crystals and conglomerate masses of oxalate of lime.

The x-ray fails many times to demonstrate presence of stone, even in cases of most pronounced and positive symptoms.

Only a few weeks ago I was called upon to relieve complete ureteral block in one of my medical friends, clinically positively due to stone. The x-ray was repeatedly negative, and the urinary findings continued suspiciously positive.

After ten days he was free from pain, but as yet he has never passed the stone, nor are we any wiser.

When x-ray is positive, all well and good! But be sure that the shadow is in the ureteral line as traced by the leaded ureteral catheter. Beware of the many pit-falls relative to diagnosis of stone in the upper urinary tract!

The operation for stone in the ureter is passing.

Eighty per cent of ureteral stones will pass, and much facilitated by cystoscopee and ureteral manipulations; such as injected oils, dilators, meatotomy scissors and ureteral forceps. I believe Bransford Lewis to be the Pioneer in cystoscopic manipulation for stone in the ureter, and his work stands out most prominently in America.

If there is a stone in the pelvis of the kidney, then pylotomy is the operation of choice. If stone is in the parenchyma then we should resort to nephrotomy.

If stone is in the pelvis and has extended into the parenchyma and destroyed much kidney substance, then nephrectomy is operation of choice, hence you rid your patient of stone and clean up the infection; as otherwise nephrectomy would only rid him of his stone, leaving him with his infection and predisposing him to formation of another stone and a subsequent operation for nephrectomy sometime later.

These things are up to the judgment of the surgeon at time of operation.

William T. Briggs, Lexington, (closing on his part): I am glad Dr. Hoffman mentioned tabes because my paper was so long I did not have a chance to cover that except to mention infections in general. Every case of retention of urine or residual urine should always at least have the usual tests made for tabes, if not a spinal puncture. I would like to emphasize, as I mentioned in my paper, the necessity of getting catheterized specimens not only in urologic work but in general surgery. Fewer mistakes would be made if in cases of obscure abdominal conditions the surgeon had a catheterized specimen to examine. If it showed any amount of blood, pus, or albumin, anything suspicions at all, I think the case should be cystoscoped before the patient is subjected to an abdominal operation, because there are a great many mistakes made when a voided specimen is examined and a few pus cells are found in the urine, which are attributed to the vaginal secretion, and there is no telling how many cases of appendicitis every year are operated on through mistake in diagnosis. I think Brewer, of New York, and O'Neill of the Massachusetts General Hospital, have given reports of cases coming into their clinics, showing that 25 per cent of cases in which they operated for ureteral stones had been previously operated on for chronic appendicitis.

Herbert Bronner, Louisville: (closing on his part): I think Dr. Briggs paper has very clearly and most assuredly shown us that urology has been brought from the realm of doubt to that of greater certainty. It is such a wide field that one can touch on only a few points. For instance, urethroscopic examination, if made, would clear up a great many diagnoses. By means of such an examination a great many patients who previously had been labeled neurasthenics have been cleared up. A great many patients with so-called vesical irritability have been shown to have had polyps or papillomata, or cysts in the posterior urethra or around the vesical neck, the removal of which has cleared up this condition.

UTERINE FIBROMATA: ASCITES. CASE REPORT.*

By Ben Carlos Frazier, Louisville

The following case is reported because of its chronicity. A colored woman, forty-nine years of age, has been under my observation for twenty-five years. More than twenty years ago I diagnosed a fibroid tumor of the uterus and tried to get her to be operated upon but she absolutely declined. She was a maid at the Children's Hospital for fifteen years or more.

In 1916 she developed some cardiac trouble (myocarditis with aortic murmur) and had to remain in bed for some time. She had the most extensive anasarca that I have even seen. She was aspirated and two ordinary bucketfuls of fluid removed. The abdominal wall was so edematous that an average-sized trocar was hardly long enough to go through it. After the fluid had drained away the patient was placed in bed. She had not been able to assume the recumbant position for many weeks. Following the aspiration she slept for thirteen hours without waking. She improved sufficiently to return to her work for six months. I believe she worked a year or more and then had another relapse; there seemed to be a certain amount of cardiac dilatation with loss of compensation. Aspiration had to be practiced at frequent intervals.

The myocardial condition has very much improved, but because of the large abdominal tumor she has had constant ascites and is unable to stand on her feet constantly. I have aspirated her about once per month or oftener for the last four years. So far as I can determine her condition today is no worse than it was three years ago. She is able to be around the house and do a little work for two or three weeks, then about the fourth week I have to aspirate, withdrawing about three and a half gallons of fluid.

I report this case because of the fact that the patient has remained in about the same condition for three or four years. I have had her continually on digitalis. It may be interesting to note that for a long time she took the infusion, but because of the difference in cost I recently concluded to try the tincture. She seems to do about as well on the tincture as she did on the infusion and is comfortable. If the digitalis is withheld for three or four days she becomes short of breath and apparently is much worse.

The patient now has no swelling or edema of the legs, but in the beginning the anasarca was the most extensive I have ever seen. The liver is apparently normal. The woman is now rather thin and the nodular fibroid tumor can be easily felt after the fluid is withdrawn from the abdominal cavity. There are three distinct nodules.

There is no question about the correctness of the diagnosis and the ascites is caused by the fibroid tumor. I believe chronic fibroids of the uterus frequently cause ascites. I have seen three such cases within the last few years.

DISCUSSION:

J. G. Sherrill: I presume we can explain the presence of the fluid by the fact that the peritoneum loses its ability for absorption. I do not believe it is inflammatory, due to bacteria. Of course we may have exudation of fluid into the cavity due to traumatism of the peritoneum by a mobile neoplasm, but I am sure I have seen ascitic fluid in fibroids where there was a tendency to degeneration; this has been noted in sessile growths which had degenerated and especially in malignant neoplasms.

Radiotherapy of Cancer.—This is Perthes' review of this subject to open the discussion at the recent German surgical congress. He reiterates that to date operative measures should not be discarded for radiotherapy except with certain carefully selected forms of malignant disease. There are many biologic problems connected with radiotherapy of cancer.

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*Clinical Report before the Louisville Medico-Chirurgical Society

THE YOUNG MAN IN MEDICINE.*

By Stewart R. Roberts, Atlanta, Ga.

Another June and from the medical schools of the republic and more over the earth, as in the ancient days when Hippocrates taught the Grecian youth, the medical graduate goes forth as the young man in medicine. This is the age of medicine and he is the chosen child of his age. He is the most carefully taught and finished product for his years that education produces. The light day and the darkness called night have been separated in medical education, and he steps forth on the dry land of medical earth with the stamp of technical and legal authority upon him. One fourth of those who entered the freshman class with him are missing; his school paid three times as much to train him as he paid for training, and above three thousand of him are graduated every year.

The law of the commonwealth proscribes his preparation for entrance to the medical school, his fitness for entrance is vouched for by an educational officer of the state, and the faculty teaches and assigns tasks that only prepared minds in healthy bodies can withstand and understand. In his senior year the patient becomes his associate and his master teacher, the school graduates him after "nights devoid of ease," the state examines him, and if he be of Darwinian fitness, licenses him with all the rights and privileges of his profession before the law and the people. He has done well to have won the title of "a good man," that phrase in medicine that seems to include character, ability and knowledge. All the agencies of his environments demand that he serve one or more years in the hospital, and finally, at the average age of twenty-five, he has just laid the foundation for the rest of his life—only this and nothing more. As a rule he is young, competent, healthy and financially helpless. The future is before him, but the present is up and at him. The mysterious ways of Providence, the arc of the pendulum of opportunity, the diversity of gifts, the rare mental quality of decision, all insinuate their magnetic influence in pointing his career. The ways of the forward years "flow as hughly as the sea," but which way shall be his way, which people his people, which "constant service to the antique world" has service?

The division of labor in medicine and the demands of civilization upon medicine offer seven paths along which he may walk to do his day's work for life, but wherever he labors let him know that he is a central figure, and that no weakling can do his work.

The first path is private practice, either with or without associates. Ninety per cent of physicians have been in isolated private practice, but the group in some form now challenges the interest and investigation of every graduate. The ultimate answer is that method which renders the greatest service at the least expense and inconvenience to the patient, with equal justice to the physician. The location may vary from city to wilderness, from a general practice to a smaller circle of medicine or surgery or obstetrics, then to lesser diameters of neurology or orthopedics, and even unto those comminuted fragments of the medical art as expressed in the devotion of a life to ophthalmology or dermatology. The specialist is just the technical assistant to the general practitioner in conducting his patient through life. "They that be whole need not a physician," but the general practitioner needs himself to be whole in body, mind and soul, for the world does not regard him as common clay. His is the first hand that touches our body as it trails its way through the travail of nature to the ego with no language but a cry. Around him gather the intimacies of life and in him is the accumulated physical, mental and spiritual suffering, pain and triumph of the race. He is the last hope for comfort and postponement as we face the great adventure. No wonder men debate which physician to have when they realize how much they trust him and how much they trust to him.

The second path is industrial medicine, as illustrated by practice and sanitation for lumber camps, mines, railroads, iron and steel plants, factories and mills of various kinds. The large companies have well organized medical staffs, with hospital and out patient departments. Industrial medicine is comparatively a new field and offers developments in occupational diseases. There is increasing demand for young men from these sources, and in proper surroundings there is the opportunity for experience, income, a savings account, and often the possibility of building a group around an industrial practice.

The third path is institutional work that permits the sheltered vista of the student, sleep o' nights and a professorial routine and habit of life. Here, in the deliberation of regularity, clinical medicine can be born again, for nowhere else is there such stimulating quiet for study and writing. The homes for crippled children, the blind, the feebleminded, the epileptics, the deaf, the old and the insane call a circle of noble and scientific men who while escaping the winds and waves of private practice, escape also its "argosies that richly come to harbor."

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*Address delivered before the Graduating Class and Alumni of the University of Louisville, June, 1921.

The fourth path is public health. The School of Hygiene and Public Health in the universities emphasizes the increasing importance of a career devoted to sanitation, preventative medicine, a public clinical laboratory, the Pasteur treatment, the record of vital statistics, health centers, detention hospitals, tuberculosis institutions, the inspection of school children, the publicity of venereal diseases and the teaching of the laws of health to all the people. The sanitarian Gorgas is a new figure in medicine, and his successors are growing in number. They serve all the way from a county health officer to the surgeon-general of the public health service. Public health within limits is purchasable, and the health officer makes the purchase for his people. Medicine is therefore an administrative function of government as well as a science and an art.

The fifth path is administrative medicine, which attracts those rare personalities who combine vision with the practical, poise and patience with energy, force with a "tact that takes up the threads of discord" and harmonizes and compromises to system and organization. All phases of medical work are made more efficient by administrative ability. Very rarely is one man a great administrator and a great scientist or clinician. This path is open in the Medical Corps of the Army and Navy, in the deanship of medical schools, in insurance, railroads, superintendents of hospitals and medical institutions. The practice of medicine itself is made systematic only by the quality of administration. One must look and overlook, say no as well as yes, and leave the details to routine.

The sixth path is of varied sun and shade, of rare invitation and happy days, the path of the teacher. He molds the medicine of his generation and makes the medicine of the next. Osler dedicated his famous practice to the memory of his three teachers, and Osler the teacher still lives on two continents. The influence of our teachers holds fast, their very peculiarities glow with interest, and their saying and axioms tide us over many a puzzling situation. Truly the teacher walks the sacred path and lives the larger life, for he that saves his life in medicine shall lose it, and he who loses his medical life shall save it. To live with the young, to see new faces every year, to learn to put much or little and that clearly, to accent essentials, to kindle enthusiasm and stimulate reason and research, and withal to hold to the ideals of modern medicine before the medical youth is more of an opportunity than a task. And here belongs the medical missionary, that triple combination of practitioner, teacher and pioneer, and many a spirit flaming with zeal and science has gone into a far country simply to serve. And also the editor, the teacher by print as contrasted with the teacher by voice, who by his writing informs and stimulates an entire profession. We are really all teachers,—the patient of the physician, the physician of the patient, and we physicians one of another.

Lastly, the seventh path is that of the research student, a very scarce figure in medicine, but the chief source of our knowledge and and progress, the chief treasure of the medicine of his country and his time. The history of medicine is largely the history of the discoveries of this intellect. Witness Sydenham, Harvey, Heberden, Laennec, Louis, Romberg, Erb, Withering, Graves, Trudeau and McKenzie with their clinical medicine, Jenner with his vaccination, Hunter, Sims, McDowell, Kocher, the Mayos, Horsley, Halstead, Cushing, Murphy and Crile with their surgery, Virchow with his pathology, Pasteur with his bacteriology, Lister with his asepsis and antisepsis, Koch, Laveran, Schaudinn and Wassermann. Nothing in medicine just happens. Nature guards her secrets and yields them tediously to the toiling thinker. Universities and clinics offer hospitality to this maximal swing of the human mind, for "a Man's gift maketh room for him and bringeth him before great men."

After the choice of his path and location, by a vote of his colleagues, if he be deemed worthy, he is admitted to the medical society and there his professional knowledge and ability are tested by as cool and critical a judgment as ever sharpened a rapier for battle. The public observes his amenities, manners and habits, his exits and his entrances, and notes what he is and does. A few test him in that long school with no graduates which we call experience. His future depends upon himself and upon very little outside himself. He has gifts and knowledge, but it is only his ability to use them that counts and makes them of value. Nearly any educated youth can learn medicine, but it is to him who has the proper combination of qualities the sum total of which we call personal character that gives him ability to use his science. From the premedical courses through the medical school to the completion of the interneship the accent is nearly all on the knowing of things and very little on the person who is to do the things. Perhaps the class itself accents the personality of its members more than anything else next to graduation. No official notice is taken of the fitness or unfitness of personality among medical students; it is only a question of class standing, whereas in life it is the Person who is a Doctor who attracts patients. Hence it is that a young man must take stock of himself, for what doth it profit a man to spend and toil and hope if a petty vice, discourtesy to custom or carelessness in the careful ways of life mar his mastery over men and medicine? Personality is the insistent force in medicine, and its possession and cultivation assures power and service.

A great Clinic asks twenty-five questions about the young doctor who applies for association with it; fifteen of these deal with personal character, seven with general ability, and only four with medical knowledge. Comment upon these will permit the young graduate to personally inspect himself and to see himself as others see him.

What is his personal appearance? Is he erect or slouchy, spotless or spotted, neat or careless, shaved or shaveless, creased or baggy, shined or dull, brushed or dusty, and do color, cloth and calling mingle?

What is his manner with his associates? Is he cordial or indifferent, kindly or repelling, genial or glum, friendly or Philistine, favoring or suspecting, walking happily near or proudly far?

What is his manner with his patients? Is he human with his art or cold with his science, firmly sympathetic or uninterested, strong in the poise of his character or loud in "the pomp of his ignorant conceit," thorough in his helpfulness or superficial in his hurry, arousing confidence or choking back trust, cheery with his optimism or discouraging with his uncertainty, a good listener or garrulous with gossip?

What is his general demeanor? Is he agreeable with "a shining morning face," courteous and competent with the graces of a gentleman; or is he negative, drifting, boorish, full of poor little ways and unfortunate habits? He is a member of a very polite profession with a very courtly heritage.

Has he ambition? Without it one eats and sleeps and works and labor has little flavor, but with it one looks upward to the stars and forward with his life. He must see a vision half the battle and ambition is the steady even if it never comes true. A beginning is stimulus. There is no finer ambition in medicine than to be the best possible general practitioner.

Has he initiative? Can he start something for medicine and for progress? Does he make the world newer by his coming? Can he project a new idea or method or remedy or does he take things as they are and let them so remain? Ambition and initiative go hand in hand.

What of his industry? Is he active or idle, energetic or lazy? Work is the very life of medicine, laziness its death. If one is too lazy to keep clean offices, to study, to read, to keep histories, to travel, to be alive with activity, what hope has he when compared to him whose life is a very enemy of idleness and never slothful in medicine. Though I have all other gifts and have not energy I am nothing.

What of his persistence? Does he keep at it, not in spurts working one day and lolling the next, but steadily, routinely, finishing the job, making the rounds, cleaning the desk, getting through? W. J. Mayo wrote "that for more than twenty years either my brother or myself made rounds at St. Mary's Hospital every morning." The race still is to him who endures.

Is he prompt? The most wasted jewel in medicine is time. The doctor is the only man to whom the adjective "busy" belongs by common consent. It is much easier to get to a patient than to get away from him. One must have the "easy ways of civil life," but be on time by starting on time. Let the goddess of chronology whisper her tickes and keep the appointment. Start at seven and not nine; talk, examine, prescribe, operate, then leave. Do the next job on time and then the rest and reading time. Promptness is a habit.

What of his honesty and his loyalty? These are the very conditions of the art. "By strength shall no man prevail," except by the strength of his character. Many moral, mental and physical deaths come in the profession because of lack of character. Wesley said "send for an honest doctor." Loyalty is the homage due the ideals of medicine and the service due the patient, for what is best for the patient is best for everybody.

Has he system, that power that permits him to work with regularity? It is the only way to do the most in the least time with the least effort and the greatest results. Ambition, iniative, industry, persistence and promptness are relatively helpless unless coordinated, guided and applied by system. The time allotted for the doing is here and he does it. Postponement is the languid offspring of laziness and lack of system.

Can he receive criticism gracefully? Is his way the only way or may there not be a better way? Can he see his faults and mistakes in wisdom or in resentment? Can he rise on stepping stones of medical errors to a better medicine? Kindly criticism from a competent senior, not nagging, is a very blessing of science.

Is he faithful in carrying out instructions? Can he be depended upon to do his best promptly even as he was told? As interne or associate does he stay around and live up to orders and is he on hand when emergency comes? The faithful youngster with his first few cases may early come to partnership in medicine over many.

Can he comprehend instructions? Can he take in a situation and act? Is he resourceful with his head and hands, those original instruments of precision? Can he tell in good English and with good address what happened on the ward? Are his enunciation and pronunciation good or is he all modulation? Does he mumble his paper or discussion or does he take a verbal stance and drive to the point? Can you read his writing or did the canary step that way from the ink bottle? Can he write good English or is he waiting until he is older to accumulate data and begin to write? The only way to learn how to write is to write. Literary rheumatism may bring about a limitation of movement in his mind if he wait too long. Does he quit when he is through? Can he observe accurately and is he developing his clinical research ability? Does he realize that science is just a record of accurate observations?

He needs to control his body. Preventive medicine can be extended to his own flesh. It is heir to wear and tear, to the same diseases as his patients and likewise needs sleep and rest and all the regularity possible. He should welcome the typhoid vaccine in season, a report on his twenty-four specimen yearly, a functional test at longer intervals, and the mercurial oscillation may warn of tension and the rise to come. Let him avoid the neurasthenic crime and the physician who heals himself. His muscles need exercise, and obesity beyond the well nourished look invites danger. It is useless to take a risk unless it is necessary. The platter kills more than the sword and the tubing has a way of growing weary and springing leaks. St. Peter said "I go a fishing," and some vacation is as needed as breathing that there may be fulness of years. Days off permit days on.

He needs to control his mind. "The whole world is a conspiracy against the intellect." It must be held apart from deterioration as his bright and morning star. 'Full many a student of purest ray serene' has located 'far from the maddening crowd' and has failed to keep his mental plow point sharpened. In these days of printed clinics, medical societies, medical centers and the "latest word" book agent, mental shrivelling is one's own clear neglect. Every back street and country road is rampant with pathology. Only let him be there that hath eyes and ears and the sum of science which is common sense. He that knows a fact when he sees it and appreciates opportunities to develop into the mature student will be the seer of his circle. There is more in the man than in the land. Beaumont used his mind in an Indian fort, Sims on a cotton plantation and McDowell in a country village.

He needs to control his spirit, that inner force in his life which gives a unified direction to all his days and deeds. It is required of him only that he do justly, love mercy and walk humbly with the Infinite. Every choice involves self denial, every gain a loss. His limitations stare him always in the face. His temptations recur with ceaseless change. He either spiritualizes and ennobles his medicine, or materializes and coins it. Medicine and mammon are usually incompatible. Science and dollars usually shy at each other. Insistent ease and the promise of the night cut may dim the early vision. The prophet of science too often becomes the slave of income. Yet there must be business days and business ways and the laborer is worthy of his hire. An avocation of delight and a valuation of medicine above all the rewards and possessions of life will hold the rudder true. He works not with things but with folks, mostly common folks, and "age cannot wither nor custom stale the infinite variety" of his every serving art.

THE DIFFERENTIAL DIAGNOSTIC VALUE OF THE DIFFERENT DEGREES OF POSITIVENESS OF THE WASSERMANN REACTION WITH THE USE OF CHOLESTEROL ANTIGENS*

By J. D. Allen, Louisville.

Since the introduction of chlosterol antigens with a subsequent increase in the number of positive Wassermanns reported, both in syphilitic and non-syphilitic conditions; the specificity and differential diagnostic value of the positive reaction have been materially questioned; especially in cases of syphilis complicated by other diseases and conditions. The serologist and clinician rather than the syphilographer are not infrequently confronted with such cases. The syphilographer usually has clinical symptoms to substantiate his Wassermann findings, but the clinician and serologist, since the Wassermann reaction is being run as a routine in diagnosis, not infrequently sees cases which show symptoms of other diseases than syphilis and whose only symptom of syphilis is a positive Wassermann. In such cases, especially since a positive Wassermann has been reported in so many other conditions than syphilis, the question naturally arises: is the positive Wassermann the result of an active syphilitic infection or the result of the other disease or condition from which the patient is suffering?

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*Read before the Jefferson County Medical Society.

Recently I have had an opportunity to observe a series of cases which well illustrated this point: A case of lethargic encephalitis with a toxic goiter showed a four plus Wassermann, with no history of syphilis. Was the positive Wassermann due to encephalitis, to the toxic goiter, or to syphilis? Toxic goiter has been reported as causing a positive Wassermann, encephalitis has been reported as causing a positive Wassermann, and we know that syphilis will cause a positive Wassermann. Did this patient have syphilis?

A case of diabetes with acidosis showed a four plus Wassermann, with no history of syphilis. The acidosis of diabetes has been reported as causing a positive Wassermann. Did this patient have syphilis and diabetes, or was the positive Wassermann due to the diabetic condition, or was the diabetic condition the result of a syphilitic infection?

A case of syphilis of long standing under heroic antisyphilitic treatment, with no symptoms of an active syphilis shows a repeated four plus positive reaction with cholesterin antigens and a negative reaction with acetone insoluble antigens. It has been reported that heroic antisyphilitic treatment produces a cholester fast blood, which is responsible for the positive Wassermann with cholesteral antigens, in such cases, "and that if treatment is discontinued the reaction returns to normal or negative. Is the positive Wassermann in this case the result of treatment or the result of an active syphilis, which does not manifest itself clinically?

A case of chronic nephritis with no history of syphilis showed a three plus Wassermann. Chronic nephritis with cholesterolemia has been reported as giving a positive Wassermann. Was this nephritis due to syphilis or was the positive Wassermann due to the cholesterolemia of the nephritic?

A case of pregnancy with chronic nephritis, with no history of syphilis, showed a three plus Wassermann. The cholesterolemia of both nephritis and pregnancy has been reported as giving a positive Wassermann. Was the positive Wassermann due to the cholesterolemia of pregnancy and nephritis or did this patient have syphilis?

A case of active tuberculosis, with no history of syphilis; showed a two plus Wassermann. Tuberculosis has been reported as causing a positive Wassermann. Did this patient have syphilis and tuberculosis, or was the tubercular infection responsible for the positive Wassermann?

A case of questionable hereditary syphilis showed a one plus Wasserman with blood which was collected immediately after an ether anesthetic; ether and chloroform anesthesias have been reported as causing a positive Wassermann. Was this positive Wassermann the result of the anesthetic or the result of hereditary syphilis?

A case of chronic ulcer of the leg, with no history of syphilis, and a *negative* Wasserman, showed a one plus positive following a provocative salvarsan. It has been reported that a provocative salvarsan will produce a weak positive Wassermann in a normal individual. Did this patient have syphilis or was the salvarsan the cause of the weak positive Wassermann?

A case of bone tumor, with no history of syphilis, showed a doubtful or plus-minus reaction. Malignant tumors have been reported as causing a positive Wassermann. Was this doubtful Wassermann the result of a malignant tumor, or was this tumor syphilitic in origin?

What is the differential diagnostic value of a positive Wassermann with cholesterol antigens in such cases as just reported? I dare say, that if any serologist should be confronted with this question, his answer would be in the form of questions, and his first question would be, who did the reactions, and his second question would be, were they repeated? What would the clinicians answer be? there are those among us, no doubt, who would disregard the weaker positive reactions, not substantiated by clinical symptoms. There are others who would make a diagnosis of syphilis on the face of a four plus positive reaction. However, before any of us can intelligently interpret and apply a positive Wassermann report, there are certain fundamental facts in regard to the reaction and its performance which we must know. The positive Wassermann with cholesterol antigens is not infallible, and its differential diagnostic value is greatest when its limitations are clearly understood. Some of these limitations are dependent upon technical errors, others on the biological processes involved.

If there is one essential to the future success of serological diagnosis, it is for the seriologist to frankly admit and the clinician to know that the field of error in this line of work looms larger and larger. An understanding of the principles involved in the Wassermann reaction and its permanence calls forth no little mental effort on the part of the scientifically trained mind, and yet the reaction is being so commercialized that technicians with no scientific education and little technical training are employed to do the reaction and their mechanical results recorded in medical literature.

The first question then of the serologist implies, first of all, that the performance of the Wassermann reaction is no technician's job, and has second question implies, first of all, that there are no 100 per cents among serologists and that a positive Wassermann not substantiated by clinical findings should always be repeated. The clinician has to do with constants; the serologist with changeable, uncertain, unknown qualities; some of the reactions of which are still unknown to immunology. These facts, then, the clinician should know, appreciate and apply, before he interprets a positive Wassermann.

The Wassermann reaction with the use of cholesterol antigens is simply a test tube experiment which technically has no claims to specificity. Cholesterin is to the Wassermann reaction, what heat is to a chemical reaction, what oil is to machinery. It plays no specific part in the running, and simply enhances the positive reaction by making more anti-complementary a serum which already has a tendency to be anti-complementary as a result of its cholesterol content. Any grave metabolic disturbance has a tendency to increase the cholesterol content of the blood, and play the same part in the performance of the Wassermann reaction as do the cholesterol antigens, therefore the reaction is not specific. and the greatest cause of error on the part of the clinician in interpreting our present day complement fixation test for syphilis is a lack of appreciation of the fact that the test does not detect an element in the blood stream of the syphilitic which is directly the product of the spirochete themselves, but merely detects some element in the blood which very commonly occurs in syphilitics and but seldom in those not syphilitic. That syphilis produces an immunity is an established fact, but the Wassermann reaction is not a test for the substance or immune body which is responsible for this state of immunity. What there is in the blood of a patient infected with leprosy, frombesia or syphilis that combines complement in the presence of a lipoidal cholesterinized antigen, no one knows. We know that it is characteristic of the infectious diseases which produce an immunity, for the immunity to increase as the infection subsides or is overcome; this is not the case with syphilis and the Wassermann reaction. The Wassermann reaction rises and falls with the intensity of the syphilitic infection and disappears as the infection subsides or is overcome. Therefore, it is not a test for the hypothetical immune body of syphilis, but merely a test for a physio-chemical state of the blood, a colloidal instability and the would-be reaction between a specific antigen and a specific antibody has resolved itself into the chemistry of lipoids.

Therefore, from a technical standpoint the reaction is not specific, and theoretically it is entirely impossible for any metabolic disturbance which increases the cholesterol content of the blood to cause a positive Wassermann. This we should appreciate before we interpret a positive Wassermann, not substantiated by clinical symptoms. Practically, however, or from a clinical standpoint we have a different and more encouraging picture. The four plus reaction in the case of encephalitis and toxic goiter changed to plus minus under active specific treatment. The case of nephritis improved under specific treatment and his urine returned to normal. The tubercular case, later admitted a specific history and his condition improved under specific therapy. The ulcer of the leg healed under specific treatment and the positive reaction following the ether anesthetic, continued positive after the effects of the anesthetic had worn off and the positiveness increased following provocative treatment. The case of pregnancy later showed a negative reaction, and the four plus reaction in the diabetic and known syphilitic have not yet been interpreted.

Although current medical literature has reported that practically every disease known to the medical profession will give a positive Wassermann, yet no where do we find a positive Wassermann recorded as a symptom of any other disease than syphilis, yaws and leprosy, and this is self evident proof that such occurrances are the exception and not the rule.

We obtained negative reactions in eight cases of active malaria, 96 cases of active tuberculosis, not complicated by syphilis; 28 cases of nephritis, not due to syphilis; 32 cases of pregnancy, 44 cases of malignancy, 3 cases of post ether anesthesia, 18 cases following provocative salvarsan, 7 cases of toxic goiter and 8 cases of lethargic encephalitis, not complicated by syphilis. One case of leprosy and 2 out of 13 cases of diabetes showed four plus positive reactions. Statistics compiled by some of our most noted serologists show that less than 2% of all conditions, excluding syphilis, yaws and leprosy, will give a positive Wassermann, and since practically 10% of our population is infected with syphilis, the logical conclusion would be that this 2% of so-called pseudo-positives is either due to technical errors or to syphilis.

Out of approximately 10,000 reactions run by us within the past five years, with the use of cholesterol antigens, 2,167 were positive. Of this number we have been able to verify 1,521 and of this number 1,408 were due to syphilis and 113 to conditions other than syphilis. Of the syphilitic reactions 512 were four plus reactions, 496 were three plus reactions, 203 were two plus reactions, 116 were one plus reactions, and 81 were plus minus reactions. Of the 113 non-syphilitic positive reactions, three were four plus, six were three plus, twelve were two plus, twenty-six were one plus, and sixty-six were plus minus. Of the three four plus reactions, one occurred in a case of leprosy and two in diabetes; the other 110 non-syphilitic positive reactions, including 4 three plus, 14 two plus, 26 one plus, and 66 plus minus reactions, were negative on repeated examinations and were due to transient metabolic conditions or technical errors. So according to our findings, 99.5% of all four plus routine reactions, are due to syphilitic infections; 98% of all three plus reactions are due to syphilitic infections; 94% of all two plus reactions are due to syphilitic infections; 81% of all one plus reactions and 55% of all plus minus reactions are due to syphilitic infection.

So practically, or from a clinical standpoint, the positive Wassermann is very highly specific and a *repeated* positive Wassermann, which excludes technical errors and transient metabolic conditions, is practically pathognomonic of syphilis—excluding yaws and leprosy.

Thus we see that a knowledge of both the technical and clinical side of a positive Wassermann is essential for an intelligent interpretation of the reaction. No longer can the serologist make the patient fit the test tube; no longer can the clinician make the test tube fit the patient; no longer can the serologist lock himself in the confines of a research institution and expect his laboratory findings to be diagnostic; no longer can the clinician ignore the knowledge of laboratory work and results and expect his clinical findings to be diagnostic. The serologist must come out of the dazzling light of the laboratory and see the clinical side of medicine; the clinician must come into this light and see the serological side, if we expect our findings to be of the greatest diagnostic importance.

This paper was not written in defense of the Wassermann reaction; neither is it a criticism, for regardless of the criticism that I or anyone else might heap against the reaction; regardless of its shortcomings; regardless of its susceptibility to technical errors; regardless of its lack of specificity, it has won for itself a permanent place among our greatest diagnostic methods. All of its substitutes and modifications have had their day and passed out, but the Wassermann principle still stands, and of all the symptoms of syphilis, the positive Wassermann with cholesterol antigens is the most constant. On the other hand, I have attempted to impress these three facts:

1. The Wassermann reaction with cholesterol antigens, technically is not specific, yet clinically is highly specific.

2. A positive reaction not substantiated by clinical symptoms should always be repeated.

3. A positive reaction, be it four plus or plus minus, means if nothing more, that syphilis must be excluded.

SYPHILIS OF THE NERVOUS SYSTEM*

By C. Brooks Willmott, Louisville.

Authentic reports of syphilis of the nervous system came after the discovery of the new world.

In 1797 Leoncino first discovered a hemiplegia due to syphilis. During the same decade various other writers described neuralgias, headaches, blindness, etc., as due to cerebral syphilis.

The 17th century brought forth the interrelation of syphilis and the nervous system; epilepsy, spasms and blindness were believed to be of syphilitic origin.

In 1834 Lallomand first demonstrated conclusively that syphilis of the meninges and brain did occur. The modern era of syphilis began with Schaundin, who, in 1905, discovered the parasite and proved his contention; but Noguchi and Moore must be given the credit for first demonstrating the treponema in paretic brains in 1913.

Shortly afterward came the Wassermann test which put laboratory diagnosis on an equal footing with clinical findings. Frequency of involvement of the central nervous system is still a matter of conjecture.

Probably about 1.5% of all nervous cases have syphilis—about .4% of all medical cases have nervous syphilis, and about 8% of all syphilitic cases have involvement of the nervous system.

In considering the etiology we should remember that probably 30%of all individuals with tertiary syphilis have no knowledge of having been infected or at least give no history of infection.

Various other contributary causes in a known syphilitic, such as toxemia, chronic lead poisoning, chronic alcoholism, and trauma, may mislead us by complicating the picture.

Whether there is a special strain of syphilitic organisms, or virus, showing predelection for the nervous system, is still a debated question. Lack of treatment and faulty treatment are, in all probability, the most potent factors. Brain involvement may occur in any stage but is usually fairly late.

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*Read before the Jefferson County Medical Society.

The pathological manifestations of neurosyphilis in general may be divided into four groups:

The syphilitic new growth;
The chronic hyperplastic inflammation;
Diseases of the blood vessels;
Primary—parenchymatous degeneration.

Syphilitic new growths vary in size from a pin head to an orange, and have been found in the brain, in the frontal, temporal, and occipital lobes; in the fourth ventricle, medulla, cerebellum, pons, and hypophysis, although the dura is the favorite location—either the convexity or the base.

Chronic hyperplastic inflammation in usually due to a combination of both gummatous and fibrous forms.

Disease of the blood vessels is a most important part of neuro-syphilis and is the result of mechanical compression of the lumina or the occurrence of thrombi or thickening of their walls. An inflammatory process beginning in the perivascular lymphatics is the beginning, and the end-result is always the same—obliteration of the lumina of the vessels, (so-called obliterative endarteritis,) shutting off the circulation and nutrition of definite brain areas, finally resulting in necrosis or secondary hemorrhage of the part supplied.

The diagnosis of syphilis of the nervous system should not be extremely difficult if we constantly bear in mind two factors:

First: Possibility of an early involvement in all cases, being ever on the lookout for symptoms of the central nervous system.

Second: In all cases showing any of these symptoms to remember the prevalence of syphilis and attempt to exclude it first as an etiological factor.

A tabulation of all cases should be kept and a yearly or bi- yearly examination made to include both clinical and serological findings.

The clinical symptoms which should arouse our suspicion may, for brevity, be divided into disturbances of reflexes, tremors and coordination. Most important of all are the eye reflexes, uneven or irregular pupils, disturbances of light and accomodation.

The Argyll-Robertson pupil reflex, when present, bilateral and constant, is practically always diagnostic of syphilis of the central nervous system. Irregularity in shape of the pupils is quite often suggestive of syphilis. Of the deep reflexes, the most important are: The patella, the tendo-achilles, triceps, biceps and jaw. The superficial are: The plantar, cervical, and pharyngeal.

The Babinski reflex, when present, practically always denotes disease of the cortico-spinal pathways. With the present serological tests, combined with neurological findings, an almost certain diagnosis of congenital and acquired syphilis, or of the so-called para or meta syphilitic diseases may be made. The chief serological findings in the blood and spinal fluid are:

The Wassermann in the blood;
The Wassermann in the spinal fluid;
The cell count of the spinal fluid;
The protein content of the spinal fluid;

Since the positive Wassermann reaction of the blood has been found in malaria, leprosy, yaws and scarlet fever, it can only be regarded as characteristic rather than specific of syphilis. Yet the Wassermann reaction of the spinal fluid is of the utmost diagnostic value, being practically always positive in syphilis of the nervous system, and nearly always negative in syphilis without nerve involvement.

Using 2 cc. of spinal fluid, it is practically always positive in every case of general paresis; in one out of every five cases of tabes, and cerebro-spinal lues, and negative in multiple sclerosis and cerebral and spinal tumors. Pleocytes, or an increase of lymphocytes in the spinal fluid is not so significant as the Wassermann, but of importance, and is present in about 95 per cent of syphilitic affections of the nervous system. But we should not forget that old cases of tabes sometimes show no lymphocytosis, and that about one-third of all syphilities may sometimes show an increased lymphocytosis without manifesting any chronic symptoms of organic nervous disease. The comparatively new colloidal gold test, or ''colloidal gold curve of Lange,'' is at present much in vogue, but is still considered of doubtful value by a number of good authorities in spite of the fact that cases which are diagnosed early and treated intensively, and bad when destruction has already taken place. Treatment by intraspinous methods should only be instituted after thorough intravenous treatment. As a general rule, give one treatment every two or three weeks for at least eight treatments. The Swift-Ellis and Oglevy, or modified Swift-Ellis, is being extensively used, and this method is thought to be giving the best results.

Great care is of the utmost importance, as pushing this treatment is extremely dangerous and not without fatalities. Absolutely negative spinal fluid findings are rare and negative or nearly so findings, with the presence of marked clinical or neurological symptoms, are an indication for discontinuing and substituting further intravenous therapy. On the other hand, it is undoubtedly true that every neurologist comes in contact with cases in which all other forms of intensive treatment fail, and which respond remarkably to intra-spinous therapy. As a prophylactic measure, the preponderance of opinion is in favor of intensive treatment of both primary and secondary stages.

Among the most important forms of the various clinical manifestations of syphilis are the following:

Syphilis of the cranial bones and vertebra, with the most common symptoms of headache if the lesions be of sufficient size to produce pressure; symptoms of tumor of brain or spinal cord may be present, also, circumscribed gummata of the cranium, pressing on the cerebral lobes, being the most common. Extensive syphilitic disease may occur with no involvement of the brain or involvement of cervical part of the column. Syphilitic basilar meningitis, like all other forms of organic disease of the brain, is characterized by symptoms of multiplicity, transiency and vagueness, often the brain itself being involved. Headache is a common symptom usually most intense at night, the patient complaining of deep pain in the eyes. Percussion over the frontal region may elicit tenderness. Vomiting and vertigo are common. Optic neuritis and choked discs are most common in this type. Involvement of the olfactory nerves may be shown by the sense of smell being weakened or even absent. Mental symptoms may arise; the patient showing rapid change from profound stupor to extreme excitement, later becoming quite clear mentally.

Prognosis in this type depends upon early recognition and intensity of treatment, mercury being especially advocated in all cases showing choked discs.

Syphilitic meningitis of the convexity resembles most the condition just described and is often associated, general symptoms depending on localization of the pathological pressure.

Just here prognosis of cerebral lues in general might be discussed. "Oppenheimer makes the statement, and Nonne agrees with him, that brain syphilis is a serious organic disease, which frequently causes death, often leads to a chronic state, but also may end in recovery." Its prognosis is decidedly more favorable than many other forms of organic brain disease; e. g., abscesses, brain tumors, multiple sclerosis, or general paresis.

To give figures is difficult, as so many cases obtain remissions and pass from observation, but the most painstaking and reliable stastistics of Naunyn and Nonne give 49 recoveries out of 537, with no relapses in five years, a percentage of 9. Relapses may occur later bearing no resemblance to the original attack, thus a meningitis apparently cured may recur in the form of an endocarditis years later. Further as to prognosis, the greater the length of time elapsing between the initial infection and the onset of brain syphilis, the less favorable the prognosis.

To summarize (sex has no influence) prognosis is best between 20 and 40, and somewhat worse between 40 and 50, and bad after 50; a neurotic make-up, a debilitating disease complicating, or head injury, are all of unfavorable influence. Prognosis in brain, spinal and cerebro-spinal syphilis is always better in cases showing no relapse. Headache is practically always present with tender spots elicited on percussion, indicating superficial disease of the brain.

Pupillary reflexes are common, but usually disappear on institution of treatment, thereby differing from general paresis. Sensory disturbances are quite common. Prognosis is fairly good; in fact, any form of localized syphilitic meningitis has a better prognosis than any other form of brain syphilis.

By cerebro-spinal syphilis is usually meant "A syphilitic involvement of the brain and spinal cord, occurring soon after infection, showing chiefly a cerebral endarteritis and a specific meningo-myelitis, accompanied by multiplicity of symptoms and ending usually in death if untreated."

This form usually makes its appearance during the second or third year, although recorded cases have been reported as early as two months, and as late as forty years.

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Primary symptoms are, headache, neurasthenia, vertigo, irritability, and disinclination to work, often progressively growing worse and rapidly advancing to dementia. Brain symptoms predominate. Other symptoms most in evidence are, pupillary anomalies, headache, vertigo, and often neuritis, while involvement of the cord is indicated by symptoms of myelitis, as loss of patella reflexes and bladder disturbances. Neurological symptoms most prominent are: Palsies, mild and transitory; monoplegias, with occasional voice disturbances, may be present—while general paresis usually presents opposite symptoms. In general, cerebro-spinal syphilis usually develops during or before the first five years of infection, while general paresis makes its appearance after five years. Cerebro-spinal syphilis may run a lengthy course, but, under intensive treatment, may resolve into an arrested stage or even recovery, while general paresis usually results in death in from one to five years even though most energetically treated.

Multiple sclerosis usually runs a long, changeless course, is unaffected by anti-syphilitic treatment, and presents three rare symptoms uncommon to cerebral syphilis, scanning speech, intentional tremor, and nystagmus.

Tuberculosis of the nervous system, sarcoma and carcinoma may only be excluded in our differential diagnosis by clinical symptoms, and by lumbar punctures.

General paresis being a much more profound and general pathological involvement of the brain and nerve tissue, accompanied by a diverse mental picture, is regarded generally as an incurable disease, although cases have been reported by such authorities as Nissl and Alzheimer as having lived as long as 32 years, death being caused by an accident.

Its etiology is always syphilitic, as proven by Noguchi and Moore in April, 1913, cases having been reported in total abstainers. Mental symptoms, besides the well known grandiose ideas, which probably occur in only about one-fourth of all cases, are, briefly: The early symptoms of neurasthenia, fatigue, absentmindedness, carelessness, headache and insomnia, usually appearing before the first convulsive seizure. After convulsive seizures, the patient may become bed-ridden, later epileptic from apoplectiform convulsions, preceded by muscular twitchings and thickened speech, which denote arrival of secondary stage.

The third stage may be said to begin with loss of control of sphincters, and an increase of all other symptoms, with physical findings both numerous and variable, most important being speech defects, the Argyll-Robertson pupil, the abnormal knee reflex, and Rombergs' sign. Loss of concensual reflex, is one of the earliest and most persistent of all eye symptoms.

When the four laboratory reactions of the spinal fluid are positive, particularly when a small quantity of fluid is used, we are practically certain of paresis.

The prognosis is generally unfavorable, yet there may be considerable prolongation of life, so-called "remission type," and one authority has reported four cases of recovery in a large number of treated cases.

At the present writing, a combination of mercury and the Swift-Ellis method of giving arsphenamine is the treatment of choice.

Tabes is said to be about one-half as prevalent as general paresis, its sole cause being syphilis, as advanced in 1875 by Fournier, but was not established until the day of Wassermann, its pathology being, roughly, a sclerosis of the posterior column of the spinal cord, most marked in the dorsal and sacro-lumbar regions, with meningeal involvement and marked changes in the ganglia of the sympathetic nerve system. Symptomatology is large and misleading, the most important symptoms being—lightning pains, girdle sensations, loss of tendon reflexes, visceral crises, ataxia, Argyll-Robertson pupil, Romberg's symptom, and bladder disturbances.

The lightening pains may be the first symptoms, and are often mistaken for rheumatic, sciatic, and neuralgic conditions.

Gastric crises are often diagnosed as simple acute indigestion and gastralgia. Renal colic should always suggest tabetic crisis. These symptoms, with sensory disturbances and the characteristic gait, make the diagnosis easy when combined with blood and cerebro spinal fluid findings.

Here again prognosis is bad, yet the disease may be arrested and remain so for years, its natural course being much longer than paresis.

Hope of the newer methods of treatment is held out, and arsphenamine therapy offers more certain, rapid and definite results than any other.

Pain and bladder symptoms, after early temporary exaggeration often subside most remarkably, the ataxia is much improved, and often the pupil reactions disappear. (Just here I will state that optic atrophy and the so-called Herxheimer reaction, are now believed to be due to insufficient arsphenamin therapy.)

Ocular palsy, impotence, loss of memory, anorexia, visceral crises, and general weakness have shown remarkable improvement under arsphenamin therapy. Syphilis of the spinal cord shows pathologically a well marked meningitis with characteristic inflammatory infiltration around the blood vessels; hence, meningeal symptoms predominate.

Severe shooting pains occur in the region of the scapulae, neck, and hips, often darting downward along the arms. If gummata exist, pressure symptoms of the cord are also present.

Diagnosis is very difficult, the most minute clinical, neurological, and serological aids are necessary. Prognosis is rather poor, and depends largely on general condition of the patient, age and existence of other diseases.

In patients presenting the chronic or transverse myelitis forms of the disease, the outlook for improvement and even complete recovery, is fair.

The amount of treatment before development of cerebro-spinal syphilis has here no value as to prognosis.

Syphilis of the peripheral and cranial nerves for the most part has been neglected, and offers a fertile field for study and investigation.

DISCUSSION.

Edward R. Palmer: Dr. Willmott has given us a very interesting and scientific paper, but as I am known to be opposed to many of the views he has expressed, I am expected to come forward with a few remarks.

In the April, 1921, number of the American Journal of Syphilis, Dr. A. R. Fraser, Medical Inspector of Venereal Diseases for the Union Government of South Africa, has written an article on the relation of the intensive method of treatment to the increased incidence of early neuro-syphilis bearing out exactly the argument which I made before this society over a year ago. It is my belief that early intensive treatment by inhibiting the development of the spirochete and therapy stopping the formation of antibodies will lead to neurosyphilis instead of preventing it. Fraser, while an upholder of the intensive method, says that it must be given very carefully, and that we must be sure when we give this intensive treatment that we have thoroughly destroyed all the spirochete. Now, gentlemen, if the argument I made here about a year ago on the mode of action of antisyphilitic drugs is correct, then we are far from being sure at any time that any form of intensve treatment, whether begun early or late, has killed all the spirochete.

Fraser also says that we must take into consideration in nerve syphilis McDonagh's theory of the life cycle of the spirochete, a theory which I have always believed, and that we must also make allowance for the fact that the central nervous system is involved very early in the disease. It is my belief that the central nervous system is involved simultaneously with the general system. It seems to be the general impression, and the impression I gained from Fraser's writings also, that the stage of generalization of syphilis is shortly before the appearance of secondary symptoms. I think syphilis becomes generalized almost immediately; that seems to be borne out by Neisser's experiments which demonstrated the infectiousness of the internal organs long before the appearance of the primary sore, or the positive Wassermann. Therefore, since we cannot be sure that intensive treatment has destroyed the spirochete, it seems to me this method of treatment should not be resorted to.

Fraser makes the argument, just as I did, that the protection of the central nervous system is through the formation of antibodies; that the antibodies are formed, as we all know, only in very small quantities in the central nervous system, being produced by the lymphocytes of which there are few in this region. The principal areas in which antibodies are manufactured are in the spleen and marrow of the long bones. Now, if by early intensive treatment we check development of the spirochete, thereby stopping the formation by the lymphocytes of antibodies, we will be working in favor of the spirochætæ instead of against them, thus tending to cause the development of early neuro-recurrences. So the further I go along instead of becoming inclined to switch to intensive methods the more firmly am I convinced that the old line of treatment is far superior to the new.

Now, as regards the Swift-Ellis method of treatment: It seems to me that here is an exhibition of germicidal therapeutics gone wild. We have allowed our minds to drift entirely away from the principles of anatomy, physiology and physics. When I first read the paper to which I have referred before a small medical society, I was asked by Dr. Forsee to express my opinion on the merits or demerits of the Swift-Ellis method. This I was very glad to do, and needless to say my opinion was decidedly against it. Shortly after giving my views on this subject I read an abstract of a paper written by Dr. F. X. Dercum which he presented before the Philadelphia Medical Society, in December, 1919, in which he expressed in a very much better and more scientific way the views which I had voiced to Dr. Forsee. According to this method of treatment the exponents seem to believe that the cerebro-spinal fluid is the medium of nutrition to the brain and other parts of the central nervous system. That is a very curious belief to me. In former years when I was professor of physiology in the University of Louisville that was not my teaching. I thought then, and still believe, that the cerebro-spinal fluid was simply a water-bed for the central nervous system, that it had absolutely no function of nutrition, having no relation whatever with the perivascular or perineural spaces. The older belief was that the central nervous system contained no lymphatics, but this has been shown to be a mistake. It has always seemed to me that the brain received its nourishment the same as any other tissue of the body, i.e., through the arterial system. If this is not the case what purpose is served by the circle of Willis with its network of arteries? These arteries ramify in all directions, extendng into the cortical and medullary regions of the brain. What is their purpose if not to carry nutrition, and if they carry nutrition they also carry drugs and antibodes. The cerebro-spinal fluid is a secretion of the choroid plexus in the lateral ventricles of the brain. It gets its blood supply from two very small arteries, the anterior and posterior choroids, while the plexus of the fourth ventricle gets its blood supply from a smaller artery, a branch of the posterior cerebral artery. Are these small arteries the only means by which the central nervous system gets nutriment, drugs and antibodies?

I believe with Dercum that the cerebro-spinal fluid is simply a water-bed for the purpose of preventing severe shocks to the central nervous system and to regulate intra-cranial and intraspinal pressure. The direction of flow of this fluid is from the choroid plexus outward into the arachnoid villa and passed into the venous sinuarachnoid villi and passed into the venous sinuses. So that any medicine introduced into the spinal canal, instead of going into the central nervous system, would immediately pass into the venous system and none would get into the nerve tissue itself. On this account I can see no reason whatsoever for the use of the Swift-Ellis method. The good results which have been noted following this plan of treatment in paresis and tabes are attributable to spinal drainage.

I notice Dr. Willmott stated that neurosyphilis was frequently caused by insufficient treatment or lack of treatment. As regards lack of treatment, I believe a man without any treatment has a much better chance of not having nerve syphilis than a man who receives the wrong kind of treatment. Fraser states in his article that many of the South Africans receive little or no treatment and that nerve syphilis is unknown there. I made the statement in my paper read about a year ago that the absence of nerve syphilis in the people of Africa was because they received no treatment in the early stage of the disease. I also stated that nerve syphilis in women was rare because seldom did they receive treatment until secondary manifestations appeared.

Claude G. Hoffman: It seems unfortunate that the treatment of syphilis cannot be standardized to a greater extent than at present prevails. Of course practically all of us followed the plan Dr. Palmer has outlined until a few years ago. So far as I am aware the intensive method of treatment has now been adopted by the majority of syphilologists, Dr. Palmer being the only one I have heard uphold the older plan. I also read the article which he mentions by Dr. A. R. Fraser in the American Journal of Syphilis on the comparative absence of neurosyphilis in South Africa. We all know that neurosyphilis is very uncommon in the negro race even in this country. Fraser concludes that in South Africa the reason neurosyphilis does not develop is because the natives receive little or no early treatment. However, I am inclined to believe it is due to some racial peculiarity.

In regard to the Swift-Ellis method of treatment: Dercum, of Philadelphia, has done some excellent work along this line. He has recently stated that much of the benefit may be attributed to spinal drainage. As a matter of fact we have never been able to demonstrate arsphenamin in the so-called ''salvarsanized'' serum. To quot Dr. Mitchell: ''Whether the efficacy of this method of treatment depends on (a) the irritative action of the serum, thereby increasing the permeability of the choroid plexus for arsphenamine, or (b) the spirochæticidal action of the arsphenamized serum, or on (c) spinal drainage, remains to be determined.''

If we cannot sterilize the spinal fluid and increase the formation of antibodies by the intraspinous administration of serum, how are we going to prevent the development of neurosyphilis? I believe it is possible to sterilize the spinal fluid and stimulate the formation of antibodies at the same time by the Swift-Ellis method.

There are valid arguments on both sides of this question. I recall one case in particular which seems worthy of citation in this connection. The patient was given intensive treatment from the very beginning, his blood became negative to the Wassermann test after six months and remained so for some time. He would not submit to spinal puncture. I think that is a point which many physicians are overlooking, i.e., patients are dismissed with blood negative without investigation of the spinal fluid. If this man had submitted to lumbar puncture he might have been saved future trouble. He developed neurosyphilis nine months after the initial lesion. Had lumbar puncture been permitted the diagnosis of neurosyphilis could have been made without waiting for the development of clinical symptoms.

In the treatment of neurosyphilis by the intraspinous method I believe much good is accomplished by spinal drainage. In several instances I have made spinal punctures for diagnostic purposes, and a few days afterward the clinical symptoms almost disappeared. This was undoubtedly due to spinal drainage; I do not see what other explanation can be offered. We are often in a quandary as to the best methods to pursue in cases of neurosyphilis.

Fraser in his article states if the diagnosis of syphilis is made early, use intensive treatment; that is, if the patient is seen before the disease has become generalized. But who can tell when it has become generalized?

Wm. J. Young: I congratulate Dr. Willmott on his most excellent review of the subject of neurosyphilis. He has shown us the importance of early diagnosis and proper treatment.

With reference to the point made by Dr. Hoffman about discharging the patient without investigation of the cerebro-spinal fluid: I think we will soon begin to make spinal punctures before or during the course of intensive treatment.

So far as invasion of the central nervous system by the spirochætæ is concerned: As stated by Dr. Palmer, we do not know exactly when this occurs, but it has been demonstrated by the Wassermann test of the spinal fluid, and also the cell count and globulin content, that invasion occurs very early, it may be before the secondary eruption or afterward. And where we have central nerve involvement it is certainly advisable to treat the patient as early as possible. I think hereafter spinal punctures will be made as soon as a positive Wassermann is demonstrated.

As to the treatment of neurosyphilis by intraspinous injections: We do not know exactly what we are doing when we use this method; this is admitted by everybody, even by McDonagh himself. However, we know that by intensive treatment we are getting better results than ever before. There are some people who say there are more cases of neurosyphilis to-day than previously, but I do not believe this. It is true that we are discovering more neurosyphilis, but this is not due to any fault in treatment, it is rather the fault of the patients. Arsphenamin is being used as symptomatic treatment, and we know from observation that it will cause disappearance of the symptoms much quicker than the old treatment with mercury and potassium iodide; and for that reason when we see a patient with secondary eruption a few doses of arsphenamin will cause so much improvement that the patient is perfectly satisfied with the result and does not return for further treatment.

I recently read an article by Moore, of Baltimore, in the Journal of the A. M. A. in which he said their observation had been that in well treated cases of syphilis by the older methods five per cent developed neurosyphilis. In recently well treated cases by intensive methods one percent had neurosyphilis in the Johns-Hopkins hospital. I agree with Dr. Moore that the development of neurosyphilis is not due to any fault of the physician where intensive treatment is used. It is the fault of the patient, we are causing the lesions to disappear quickly, thus creating a false sense of security on the part of the individual and he neglects his treatment.

While I do not suppose many of us agree with Dr. Palmer's position in the treatment of syphilis, yet he may be right. However, we have the satisfaction of knowing that the intensive treatment has produced clinical results which seem to be permanent.

In regard to the benefit derived from drainage of the spinal fluid in connection with intra-spinous injections in neurosyphilis: I believe the benefit of drainage is admitted by the majority of those who have used this method, and this fact is decidedly in favor of the Swift-Ellis plan. Exactly what the therapeutic effect is I am not prepared to say, but I am sure good results have been secured even in certain cases of locomotor ataxia. We have patients in the city hospital clinic who have been materially benefited and are now able to work every day. I do not know how long improvement will last, therefore I am continuing intra-spinous treatment irrespective of what the therapy is. After having failed to check the progress of the disease with mercury and intravenous injections of arsphenamin, we have nothing else to offer our patient except the intraspinous method, and I have seen a number of patients benefited. In general paresis this treatment is more apt to do harm than good.

John J. Moren: In the diagnosis of syphilis I have encountered some very curious stumbling blocks. A man was recently referred to me who was supposed to have a negative blood Wassermann. He presented a clinical picture typical of neurosyphilis, disturbance of his reflexes, tremors, pupillary symptoms, etc. I thought he had syphilis of the central nervous system and had another Wassermann test made which was reported ++++. Why the first Wassermann was negative and the second positive perhaps someone else can explain.

There is a certain picture about nerve syphilis that is difficult for me to describe, but those of you who see many of these cases can easily recognize them. The patient is not well and does not look well, he looks below par generally. There are changes in the individuality and personality of the patient. Following disturbance in nutrition and change in personality there are noticed pupillary changes, reflex disturbances, etc. Under such circumstances it has been my custom to treat the patient for syphilis regardless of what may be the Wassermann reaction.

I saw a gentleman the other day who was supposed to have had syphilis several years ago. He is now sixty years of age and had all the appearance of a healthy man, one who has been accustomed to good living. He did not present any evidence of syphilis according to the picture I have just described. He was at one time treated for syphilis without any result whatever, and I do not believe he ever had the disease.

That brings me to the point of the treatment of neurosyphilis: I think the mistake that is made in the treatment of syphilis today is that we are treating "syphilis" and not our patient. If we would pay more attention to treatment of the patient with neurosyphilis our results would be much better.

Not long ago I saw a patient with middle ear disturbance due to lentic infection, and by the way the eighth nerve is quite frequently involved in syphilis. This patient had been treated by many physicians, in fact he had received entirely too much treatment. After examination I concluded to discontinue all treatment and see what happened. He has markedly improved since. Quite frequently I have patients referred to me with just such a history as that. Treatment is discontinued and the patient improves.

One of the best examples I have ever seen occurred in the Hospital College of Medicine Clinic many years ago. A man had neurosyphilis and had been given good doses of mercury and potassium iodide. Investigation showed that the man had been unable to secure enough to eat. All medication was discontinued and proper food supplied. Under this method of management the man improved in a general way, and then we started mercury and the iodides again and he got well. Since that time if the syphilitic who applied for treatment was below par physically I have always tried to first improve his condition before beginning intensive treatment, and have found better results can be secured in that way.

As to the occurrence of neurosyphilis today: I do not believe I see as much neurosyphilis as I used to. Whenever I see a patient with neurosyphilis I regard it as an untreated case. I can not agree with Dr. Palmer in the statement that a patient untreated has a better chance of avoiding neurosyphilis than one treated early. If the patient has received plenty of mercury his chance of having neurosyphilis is much less than one who has received no mercury.

In regard to intensive treatment and to the point made by Dr. Young with refereuce to Moore's statistics: I have not read Moore's article and do not know whether he is comparing cases treated by the older and newer methods. The important point is, was he comparing old cases treated by the old method with newer cases treated by the newer methods? The question arises whether his new cases will develop neurosyphilis later. Dana has said there are a number of individuals who will develop neurosyphilis regardless of the amount of treatment they receive. There is a certain type of individual who will develop locomotor ataxia regardless of treatment.

With reference to neurosyphilis in the negro race: Involvement of the central nervous system of the negro is rare in this country. Locomotor ataxia is very uncommon in the Japanese. Why these things are true no one seems able to explain. I have seen cases of typical locomotor ataxia in the negro race, but they are very rare. It must be a racial characteristic.

One point in regard to epilepsy: I cannot associate epilepsy with syphilis as stated by the essayist. I believe there is always some mechanical lesion, embolus, or scar tissue which produces epileptic attacks in the syphilitic. It is symptomatic epilepsy.

C. B. Willmott, (closing): I wish to thank the gentlemen for their liberal discussion of my paper. I tried to make it perfectly plain that I favored the intravenous administration of arsphenamin, provided this method was productive of the proper effect; but there are cases in which intravenous injections are of little avail, and we must resort to the intraspinous method.

I make this statement based on my experience in the Vanderbilt Clinic, New York, where I spent nearly a year. Many patients with neurosyphilis were treated during that time in the clinic, and it is quite natural for one to pass judgment on the treatment of such cases by the results he has seen. It is my custom to first try the intensive intravenous injection of arsphenamin in the treatment of neurosyphilis, and if prompt results are not secured the intraspinous method is then substituted.

As to whether arsphenamin is taken up by the cord directly or indirectly we have no actual proof except the therapeutic one of marked improvement in mental cases. As we know that cocaine when used in the same way in the now absolute spinal cocanization method was taken up. It is not logical to believe that arsphenamin might just as readily gain entrance into the cord, brain and general nervous system?

The Significance of the Blood Findings for the Course of Pernicious Anemia.—Flater cites a case to show that we are not justified in basing our prognosis solely on results of the blood examination. In the reported fatal case in a man of 63 there was a marked incongruity between the blood picture and the intensity of the disease, since at death the hemoglobin content was still 58 per cent and the erythrocyte count 2,600,000. Usually, death results in pernicious anemia only when the blood picture falls below the point at which life can be maintained.

Loofah in Surgery.—Juvara expatiates on the superior advantages of pads of loofah, for cleansing the surgeon's hands, instead of a brush. This vegetable sponge allows sheets to be cut 10 or 11 cm. square and these squares can be sterilized readily in a box from which the squares can be drawn automatically, like the apparatus to supply toilet paper. He says that this vegetable sponge bears sterilization better than brushes, and cleanses the part better, while the action is gentler and more even. This sponge gourd grows readily in tropical regions, and for every reason, he declares, it is superior to a brush for preparing the surgeon's hands.

PREVENTIVE MEDICINE.*

By Ben Carlos Frazier, Louisville.

A brief discussion of certain phases in connection with preventive medicine at this time was suggested by a case of typhoid fever which came under my observation a few weeks ago. The patient was a girl aged seven years who, with her parents, an older sister and younger brother, visited a summer vacation camp. Within ten days this girl became ill and the family returned to Louisville.

During the first few days that I saw this child she had continuous fever, which caused me to suspect typhoid, especially after the intestinal tract had been thoroughly cleansed, and that was the diagnosis made. Slightly earlier than is my custom a Widal test was made which was found positive thus confirming the clinical diagnosis. The child was isolated and properly treated; she has made a satisfactory recovery and no other members of the family contracted the disease.

I had given typhoid vaccine to quite a number of children and also adults early in the summer before vacation time, but this family I had not seen. The mother stated that her attention had not been called to the necessity of adopting measures to prevent typhoid fever, and that was one feature which made me think it worth while to discuss the matter. Almost every physician in general practice has people brought to him during the early summer for the administration of typhoid vaccine because they are leaving the city and may have typhoid fever to contend with.

The beginning of preventive medicine dates from the time when Jenner (1776) began the use of vaccine against so-called smallpox or cow-pox. Shortly afterward the British Government adopted this preventive measure in the army and navy, and vaccination soon became almost world wide. There remain only a few countries in which vaccination against smallpox has not been made compulsory, and it has been the means of saving thousands of lives every year. There is everywhere abundant evidence of the efficacy of this preventive measure in the reduction of the incidence of this loathsome disease.

It was about the time I began the practice of medicine that diphtheria antitoxin was introduced. The first case in which I saw it administered was in 1894. Dr. Ap Morgan Vance was called late at night to perform tracheotomy upon a child with diphtheria; as the patient did not appear to be critically ill he suggested intubation instead of tracheotomy and we sent for Dr. S. G. Dabney. Antitoxin had then been successfully used in many cases, and Dr. Dabney did not intubate but gave antitoxin. The child made a prompt and satisfactory recovery. It was soon recognized by the profession that diphtheria antitoxin was not only of value as a curative measure but also as a prophylactic, and its field of usefulness was thus tremendously broadened.

The most recent and I think the most wonderful method of determining individual susceptibility to diphtheria, which is both feasible and practical, is known as the Schick test. The health departments of the city of Louisville, Jefferson county and also the State of Kentucky, as well as the health officers throughout the entire country, are now employing the Schick test extensively. I will not take time to describe the technique of making this test as it is familiar to all of you. By the use of this test it can be determined whether the individual has a neutral immunity to diphtheria or whether he is susceptible to the disease.

I formerly thought diphtheria was not so actively contagious as we had been taught, inasmuch as some of the children in certain families did not contract the disease. However, I am certain now that it is not a question of the contagiousness but of natural immunity which many individuals have to the disease. More than one hundred Schick tests were made last spring among children in an institution under my immediate supervision. In the first series of eighty-five there were only eight positive reactions, and it was gratifying that such a large percentage of these children were immune to diphtheria. In every institution of this kind, also in schools and families, many children are exposed to diphtheria but do not contract it. Certain individuals have immunity to various other contagious diseases besides diphtheria, and these of course are doubly blessed.

Wonderful advancing strides have been made in the prevention of typhoid fever and malaria. The successful prevention of malaria is largely due to recognition of the fact that the infection is disseminated through the mosquito, but perhaps a greater preventive measure is the use of properly constructed window and door screens. Crude petroleum has been used successfully in destroying mosquitoes in their breeding places. If all openings are properly screened mosquitoes and flies cannot get into houses. Flies spread disease by contaminating food and water supplies. Some of the most serious cases of typhoid fever seen in Kentucky last summer occurred in a county where screens were lacking or the houses were poorly screened and where sewerage facilities were totally inadequate.

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*Read before the Louisville Medico-Chirurgical Society.

During the summer months the water supply was very low in certain sections of the state, and many cases of typhoid fever were reported in those localities. Several children under my care in the city visited these particular sections, but before leaving they were given typhoid vaccine and none of them became infected. Whether these children were naturally immune or whether typhoid vaccine acted as a certain preventive measure I am not prepared to say.

During the recent World War the importance of screens, careful attention to the keeping of food products, and particularly vaccination against typhoid fever was recognized by everybody, and as a result of the observance of these precautions there was practically no typhoid fever among the soldiers. In the Spanish-American war thousands of soldiers died from typhoid fever,—to the everlasting discredit of the medical profession. Success in reclamation of the Canal Zone was due almost entirely to the use of screens, proper care of food products, teaching people to keep mosquitoes away from uninfected persons, and to keep flies away from food supplies. Of course individual cleanliness also played an important part in preventing disease.

There are so many factors to be taken into consideration in teaching the public preventive medicine that it will necessarily be a slow process. The city, county, state and national health authorities are not furnishing sufficient funds to provide all-time-pay health officers and nurses. This has been and will probably continue to be the greatest handicap; and this is being realized here as well as in other sections of the country. Having been connected with the health board I am rather familiar with the facts, and when we ask for money to employ another nurse or health inspector we are told no funds are available for that purpose. If the tremendous saving in time lost because of sickness, to say nothing of the loss of life, could be brought forcibly to the attention of those who manage the finances of the health situation, I believe funds would be forthcoming to enlarge the scope of this important work, i. e., preventive medicine.

Instruction of the public in prophylaxis is most needed primarily. Sanitary privies should be installed throughout the country where open privies are now used. Very few country people recognize the dangers of improper disposition of feces and urine from a patient who has or is recovering from typhoid fever, and it is not strange that other members of the family contract the disease under such circumstances. This happens frequently because they know nothing about preventive measures, sometimes it is the fault of the doctor or nurse in attendance. Everything relating to prophylaxis is of the utmost importance and has an essential bearing upon the health and longevity of the people in the community.

There ought to be all-time-pay health officers and nurses in every county, and there ought to be a greater number of medical inspectors. County health officers should frequently inspect the surroundings and personnel of dairies, also the dairy cows with especial reference to ulcerated udders, sore teats, the presence of tuberculosis and other infections which are so readily disseminated through food supplies and particularly through milk. In Louisville we have occasionally had a near disaster, but fortunately it never materialized, because of carriers of diphtheria or other contagious disease having been found among those working in certain dairies or milk plants. We have been fortunate, as a rule, in having conscientious men in charge of the certified dairies supplying the city. Disease carriers have been isolated and treated as soon as discovered and several times during the last twelve years dairies have been made to discontinue business for the time being. Such things ought not to happen where dairies and distributing stations are operated under proper supervision.

One of the most unfortunate accidents that has happened in Louisville in the way of disease being brought here through milk was about a year ago. There were some cases of typhoid in a certain dairy in an adjoining county which the health officer apparently overlooked. Infected milk was sold in Louisville and several deaths occurred from typhoid fever, one being the child of a man who was engaged in delivering the milk. The source of the infection was finally located and the dairy was forced to discontinue deliveries. While general practitioners and particularly those interested in health work are constantly on the lookout for such accidents, yet occasionally something like that arises.

There is in Louisville an ordinance, which I am sorry to say is not universally followed, to the effect that there must be one or more negative fecal and urinary examinations before a typhoid patient is dismissed. The child mentioned in my opening remarks is still being kept in quarantine although both her urine and feces have been examined and found negative. There has always been some friction between the health board and local physicians about the quarantine period in contagious diseases, the time children should be excluded from school, etc. Many doctors are extremely careful in matters of this kind, many others are careless, and many claim they are busy and accept the statement of the mother or some other member of the family that the patient is well instead of making another visit to determine for themselves. These things interfere seriously with the question of preventive medicine.

We have had more diphtheria and scarlet fever in Louisville during the last nine months than in the previous two years. Physicians and health officers ought to consider preventative medicine more seriously than ever before, and there are many angles to be considered. If there is any way to maintain health in the community it seems to me it is through preventive medicine. Isolation is important and usually effective, but entire communities cannot be isolated during epidemics. Many people are dismissed from quarantine while still carriers of infection and thus dissemination continues.

The management of pneumonia represents another perplexing problem. Many preventive measures have been instituted to limit the spread of this disease. Most families now recognize that the sputum of a pneumonia patient should be immediately disinfected or destroyed. People seem to be more careful about allowing relatives and friends to visit patients with pneumonia than any other disease. In the country, however, when anybody is sick "all the neighbors flock in" to see and talk with the patient. I was so unfortunate as to have typhoid fever while living in the country about thirty years ago. Visitors annoyed me so much that it was not long before I feigned sleep when I heard anyone coming in to see me. Country people do not realize the necessity of keeping visitors away from the sick room nor the fact that the patient ought to be kept quiet. For these reasons the city trained nurse who goes to the country has a difficult job to handle; she insists that the patient be kept quiet and have no visitors, and naturally everybody in the country is opposed to her. People should be taught the meaning of preventive medicine in all its phases, and that quietude and freedom from worry assist the patient toward recovery.

Some important work has been done in Louisville during the past summer among the children of pre-school age, e. g., vaccination, adenoidectomy, tonsillectomy, etc., and the city health officer is entitled to great credit for what he has been able to accomplish in this direction.

DISCUSSION:

Irvin Lindenberger: My duties as health officer are confined to Jefferson County, that is outside of the limits of the city of Louisville, and I will speak from that standpoint only. I agree with Dr. Frazier that the question of prevention of communicable diseases is particularly important at this time when the schools are about to open. The health department has to consider: first, the proper correction of defects in children found on physical examination, and second the establishing of clinics for medical practitioners and specialists in the county where this work can be done. No health officer can accomplish very much unless he has the co-operation of physicians in the community.

A survey of eight states demonstrated that rural children had from fifteen to twenty-five per cent more physical defects than city children. The reason assigned for that is that city health departments have become more efficient, they have made more physical examinations, and have promptly corrected existing defects. I have made no comparison with the city health department statistics, but have found many children with physical defects in the county. This fact was emphasized at the beginning of the World War, many country boys being rejected on this account.

On first examination it appears that school children show more defects than at any other time. We try in all cases to secure co-operation of patients, and I submit a few of the forms used in handling various branches of our work. We expect to find defects among school children and have cards for various purposes. We have a non-exclusion card which is used when we find non-communicable disease, for instance, involving the eye, ear, nose or throat. The card is addressed to the parents or guardian and gives the full name of the child with the suggestion that examination be made as the child "seems to show" abnormality of the eye, ear, nose or throat as the case may be. It is the policy of the county health office not to make a definite diagnosis nor to institute treatment except rarely in simple affections.

If children have communicable disease we send an exclusion card to the school teacher which excludes them from school until re-admitted by order of the county health officer. The exclusion card is also used if they have not been vaccinated against smallpox, if they are carriers of diphtheria, or if they have trachoma, pediculosis or scabies. Where any communicable disease exists in the home we notify the principal or teacher of that particular school to exclude children of that family until a re-admit card has been received. This re-admit card is not sent until thirty days after recovery from scarlet fever, until we get a negative throat culture in diphtheria, and until expiration of the quarantine period in various other communicable diseases.

I have prepared this year bulletins showing the quarantine periods required in different communicable diseases, such as typhoid fever, pertussis, scarlet fever, diphtheria, etc., and a copy of the proper bulletin is sent or left at the home of the child. For instance, when a case of typhoid fever is reported this "typhoid bulletin" is either mailed or left at the house, usually the latter because we try to make a personal investigation in every case of contagious disease and keep a record of the facts. All these bulletins contain a general statement to parents and also suggestions to attending physicians and health officers.

The three diseases in which we have accomplished the least from a preventive standpoint are : measles, scarlet fever and pertussis. We have been able to do something in the way of preventing diphtheria and typhoid fever. Fortunately we have a fine group of doctors in the county who have co-operated most heartily with the health office. However, the results of our efforts are often rather discouraging. Comparing my records this year with last I find that during the entire month of September, 1920, there were only ten cases of diphtheria reported; for the first three days of September, 1921, fifteen cases have been reported. I understand diphtheria is now more or less epidemic in certain adjacent cities and probably some of the cases reported here originated elsewhere.

Every time a case of typhoid fever is reported we investigate the matter and do everything possible to prevent the spread of the disease, but the results are discouraging at times. For instance, in a small town near Louisville, we examined a well on private property and found the water polluted. A sign was placed over the well reading THIS WATER IS UNFIT FOR USE, but the owner of the property destroyed the sign, his wife drank the water and died from typhoid fever, and the husband now has the disease.

With further reference to diphtheria: We are now making arrangements for extensive application of the Schick test during the coming year. The immunity conferred by this procedure is supposed to persist for life and we hope to accomplish a great deal of good.

We have recently induced the Board of Education to take more active interest in health work with special reference to education of teachers. Any child who appears ill will be examined by the teacher and if any fever is present the child will be sent home. We hope in this way to accomplish more than we have heretofore in the prevention of communicable diseases. There are only two classes of people with whom we can accomplish much in our work, and these are children and teachers; We can do nothing with many of the parents .

As to the tonsil question: When our examination shows apparent abnormalily of the tonsils, a card is sent the parents stating that the child should be examined, as the tonsils seem abnormal, and the advisability of an operation is suggested. The county health officer does not operate on these children, they are referred either to a specialist or to one of the hospitals for such attention as may be deemed necessary.

J. Garland Sherrill: Twenty-five years ago, when I was still engaged in general practice, I had occasion to treat a child aged seven years who had pneumonia with empyema, and advised operation which was refused. The illness occurred during the summer, the child was able to be about the house, and acquired the habit of expectorating on pieces of waste paper placed on the floor. I cautioned the mother about the dangers incident to this and tried unsuccessfully to prevent it. The moment sputum was deposited on the paper it was devoured by flies which would then light on the food during meal times. The mother shortly thereafter developed pneumonia and died, which suggested the possibility that the infection might be spread through the medium of flies.

Not long after that experience it became a well known fact that many infections were spread by the common house fly. Along with the health campaign something should be done toward educating the public to protect foods used by the family from contact with flies.

Sidney J. Meyers: We all recognize the importance of prophylactic measures in communicable diseases, but it is sometimes difficult to apply them. Two of the principal factors with which we have to contend are: first, lack of co-operation on the part of physicians, second, lack of co-operation on the part of ignorant and selfish people. This applies to those who practice general medicine in the city as well as in the county.

Those of us who do general practice in families, good, bad and indifferent, find them quite willing for us to isolate the fellow next door, but will not agree to isolation of a member of their own family. The health department has received many letters from individuals objecting to supervision of local health officers. The city administration has always co-operated with the health department in every way possible. While we cannot get enough money nor as large a personnel as we would like in the health department, they are willing to do everything they can for the betterment of public health.

Another feature that needs correction is the attitude of local physicians. For instance, I may not thoroughly agree with the health board as to the communicability nor the isolation period necessary in certain diseases, yet if there is a rule or consensus of opinion, which governs I should subscribe to it.

No doubt some of us, at the urgent request of parents, have allowed children to return to school too early after recovery from contagious disease. On the other hand, I am sure many children have had pertussis, measles, and even diphtheria, and no physician was called, the patients being treated at home for so-called cold or sore throat. Doubtless throat specialists often see patients with post-diphtheritic paralysis where the statement is made that no physician ever saw the child, that it had ordinary sore throat, etc.

Another point: A physician is attending a family in which there are several school children; the mother receives a note from the health officer that little Johnny's tonsils need attention and calls to ask for advice. She is often told by the physician to pay no attention to the notice from the health department. Dr. Lindenberger is correct in his statement that if we have not the cooperation of the doctor and the parents little can be accomplished.

Last year the health office thought it wise not to allow any child to return to school until seen by the health officer or his assistant. There was objection to this ruling because the child had to be taken to the health office for examination. The only reason the health board insisted upon this for a while was because doctors were allowing children to return to school on the statement of the parents. For instance, if a child had suffered from measles, scarlet fever, chickenpox or pertussis, and the mother telephoned that there was no longer any fever, cough, eruption or desquamation, the child was allowed to return to school. When seen at the health office some of these children were still desquamating from scarlet fever, they still had signs of measles or pertussis, yet they were permitted by the doctor to return to school.

S. G. Dabney: There are many points of interest in the discussion we have just heard. We knew nothing about the Schick test until quite recently and it was not until a few years ago that we knew very much about individual immunity to certain diseases. Not infrequently have I seen five or six children living with their parents in two rooms; one child would have diphtheria and the others did not contract it. Dr. Frazier found only eight children susceptible to diphtheria out of eighty-four, the others being immune. That is about in accord with my experience of many years ago, when I did considerable work in diphtheria cases.

Dr. Frazier did not mention one disease which is of tremendous importance, and that is trachoma. We ophthalmists do not entirely agree with the United States Public Health officials in the diagnosis of trachoma, and objections have also been raised to the method of treatment employed by them. However, they have done an enormous amout of good and very little, if any, harm. I think the cicatrices noted following their treatment are the result of the disease and not the treatment. Even if they sometimes make a mistake in the diagnosis, their treatment is harmless in most cases. They are teaching people how to prevent transference of the disease to other members of the family, and this will be of great assistance in preventing the disease with its resulting deformity and blindness.

We have an analogous condition in connection with adenoids. Most of us agree that in the next generation there will not be so many deaf people simply from removal of adenoids. They are fully as important as the tonsils in my opinion.

J. Rowan Morrison: Dr. Frazier has introduced a timely subject for discussion, one in which we are all equally interested. While I am sure the majority of physicians will subscribe to everything that has been said by Dr. Frazier and Dr. Lindenberger, there are always people who are against any proposition that may be made. Some people are against everything proposed by the public health authorities especially in connection with school children. The attitude of ignorant parents probably has a great deal to do with the troubles being encountered.

I am in hearty accord with the statement that there ought to be an all-time-pay officer and health nurse in every country. There is no question but a competent nurse can do more than anybody else with poor and ignorant people on this question of preventive medicine. When we started working on the Babies Milk Fund it was contended they ought to have certified milk, but this could not always be obtained and they seemed to get along about as well without it. Much of the improvement in the condition of these children is due to the influence of the nurse working with parents. They first came to the clinic with dirty children, dirty clothes and dirty dogs; later much improvement was noted, the babies and their clothing was clean; this was largely due to the influence of the nurse educating the parents to a higher level.

As to why we cannot prevent nor control measles and pertussis: Much of the difficulty is due to our lack of knowledge concerning these two diseases, and unfortunate accidents sometimes happen. For example, a physician referred a child to a certain hospital for tonsillectomy, and the child contracted measles while in the hospital. Just how infection happened to occur no one was able to explain. It is quite probable many cases of this kind have occurred in connection with both measles and pertussis. The milk supply of every city ought to be so safeguarded that there is no danger of infection from that source, and I believe this con be done with proper education of dairymen.

There is much the public ought to know about adenoids in relation to diseases of children, both in connection with and independent of the tonsils. Children having frequent head colds, adenoids and enlarged tonsils are prone to have middle ear infection. Some of you will recall that Dr. J. M. Knox stated before the Southern Medical Association meeting in Louisville that many young children who were subjected to both adenoidectomy and tonsillectomy might have gotten along very well with the former operation until they reached the age of seven years, which is the time of election for tonsillectomy when the operation is required. It has been a question in my mind whether, in young school children, the simple operation of adenoidectomy might not be productive of as much good as the more serious operation of tonsillectomy. It seems that specialists and pediatricians have recently not been nearly so eager to remove tonsils as to remove adenoids, recognizing that the latter are often sources of focal infection. The adenoids are of greater importance than the tonsils in many instances.

Adolph O. Pfingst: Dr. Morrison said that the ignorance of parents was one of the chief obstacles to education in preventive medicine. The parents are not always of the ignorant type, many of them are intelligent enough, but they assume a peculiar attitude in that they resent anything told them by the medical inspectors. The eyes might have been examined by a DeSchweinitz or the throats by a Sluder, yet they are prone to say "the physicians who examined their child did not know anything." They want us to uphold them in that attitude. I agree with Dr. Lindenberger that the lack of co-operation between doctors, health boards, medical inspectors and parents is unfortunate and often leads to serious misunderstanding.

The cards exhibited by Dr. Lindenberger are familiar to the most of us. This system of examining school children's eyes and ears and making reports was introduced by Dr. Allport, of Chicago, who has devoted the greater part of his life to this work and has tried to educate people concerning the importance of examining school children with especial reference to eye, ear, nose and throat diseases. It seems to me each school should have one teacher sufficiently prepared to make superficial eye and ear examinations especially with regard to function and have those which show defects listed for examination by the medical inspectors. It might be well for the county and city boards to consider this feature.

I wish to agree with what Dr. Dabney has said about the work being done by the United States Government in connection with trachoma. There is no reason why we should be at loggerheads with the government inspectors. I can readily see why they would rather make a mistake in diagnosing a case trachoma when it is one of folliculosis, rather than to make a mistake in the opposite direction. They are trying to educate people on the question of trachoma especially with regard to prevention of the spreading of the disease.

Dr. McMullen has done some good work in the mountain regions of Kentucky as well as the state at large. He has doubtless made mistakes as all of us have in diagnosing cases as trachoma when they were folliculosis. It is evident that where he sees the patient perhaps but once the differentiation is not always possible as it is in our private practice where we have the advantage of "follow up" treatment and observation.

James Royden Peabody: Dr. Dabney and Dr. Morrison have discussed the point which I intended to make about the advisability of removing adenoids. At the city hospital on clinic days we are swamped with children who come for examination presenting cards from the county or city health officer because of adenoids or enlarged tonsils. Parents often telephone that some county or city doctor said their child had adenoids or diseased tonsils; they do not believe it and sometimes become very indignant about it. Their attention is called to the fact that the card merely reads that the child "seems to have adenoids or diseased tonsils," and we try to pacify them by saying the doctor may have made his examination hurriedly; but the card indicates that he was suspicious and thought the child ought to go to a physician or the hospital for more careful investigation.

The older I grow in this specialty the more radical I become about the removal of adenoids and tonsils. I do not want to create the impression that I favor removing all tonsils, but all adenoids and all diseased tonsils should certainly be removed. One attack of middle ear infection to my mind indicates that the child has too much adenoid tissue. In a paper recently read before a special society on "The Relation Between the Nose and Throat and Ear Diseases," I made the statement that every case of otitis media, acute or chronic, was either directly or indirectly caused by some pathology located in the nose or throat. This may mean adenoids or diseased tonsils.

In the Kentucky Medical Journal for July, 1921, which I read only today, Dr. C. T. Wolfe, in reporting his impressions of the papers read in the section on the ear, nose and throat at the Boston meeting of the American Medical Association, states that "the pendulum seems to be swinging farther away from conservatism in the treatment of diseased tonsils. This is especially noted in the treatment of beginning deafness." Personally I think in the majority of these cases we are not consulted until after the damage has been done. The catarrhal otitis media probably never became suppurative in type although it may have started in early life from abnormality of the nose or throat,—probably adenoids or diseased tonsils.

Another point worthy of emphasis was recently brought to my attention: Adenoids removed early in life, although the operation may be carefully performed, may later return and produce annoying symptoms. It is quite possible that in some instances the operation is not thoroughly done and some adenoid tissue may be left; we do not see it as we have to depend largely on our sense of touch. I have seen children improve wonderfully in general after the simple operation of adenoidectomy. In tonsillectomy of course the operative procedure is more serious.

I would like to know what we are to do in regard to the protection of children in a household with an active case of diphtheria. Should we give these children who have been exposed to diphtheria an immunizing dose of antitoxin or have the Schick test made to determine whether or not the children are susceptible to the disease? Personally I am in favor of giving an immunizing dose in spite of the remote danger of anaphylaxis.

I. A. Lederman: The discussion seems to have drifted toward the subject of adenoids and diseased tonsils. I want to endorse what has been said with reference to the importance of removing adenoids. However, I fear the impression may have been created that adenoids are prone to recur after removal. In children of school age, when adenoids are thoroughly removed according to present methods of procedure, I believe recurrence is rare. That they do sometimes recur we all know.

I have wondered if everyone has had a similar change of attitude that I have since the time when school inspection was first instituted several years ago? We believed at that time many children were excluded from school when there was nothing abnormal about the eye, ear, nose or throat. We thought the inspectors were too arbitrary and radical in their views and for a while we had a great deal of trouble with parents and children about tonsils and adenoids. However, conditions have markedly improved, perhaps we have become more public-spirited, and we have changed our minds with reference to the indications for tonsillectomy to a considerable extent. It is better in my opinion to remove a few tonsils unnecessarily than to fail to remove the greater number requiring removal.

With reference to trachoma: I am in perfect accord with the views expressed by Dr. Dabney and Dr. Pfingst. We were inclined to oppose the government inspectors when they first came to the state, but I have changed my mind about them also. Not that I agree with them in all cases in the diagnosis of trachoma, but I would rather see any number of patients with follicular conjunctivitis operated upon unnecessarily than to see one case of trachoma neglected, because the operation does no material harm.

One class of eye cases not mentioned thus far in the discussion is simple disease of the conjunctiva. Is there any ruling in either of the health boards with reference to conjunctival inflammation accompanied by discharge? Personally I believe that every child with conjunctivitis accompanied by discharge should be excluded from school. It may be a simple conjunctivitis but until bacteriological examination is made the suspicion exists that the disease may be communicable.

Gavin Fulton: Those of us who are not connected with the health office have had experiences like the following on many occasions: A child is brought to us before the opening of school for vaccination against smallpox. We vaccinate and the result is negative. Two or three weeks later the child is again brought to us and the procedure is repeated with negative result. The child is then allowed to go to school, but the principal sends notice that another attempt must be made. This is done and still the result is negative. The child is then allowed to attend school for two weeks and is vaccinated the fourth time without success. I would like to know what the status of the child is under such circumstances. It seems to me repeated negative results from vaccination indicate that the child is immune to smallpox for the time at least. During every school term there is more or less controversy between parents and teachers on this subject.

In regard to diphtheria: There is now almost perfect agreement as to the value of the Schick test, and I think it ought to be made compulsory. After the disease has developed, when there are other children in the family, it is a question whether or not the well ones should be given immunizing doses (1000 to 2000 units) of antitoxin. Personally I could never see the practical value of such a procedure. Antitoxin can only be of temporary value and for that reason should not be used as an immunizing agent. Whenever there is a case of diphtheria in a family the sick child should be immediately isolated and treated with curative doses of antitoxin. In the event any of the others contract the disease they should be treated along similar lines.

I recall an instance about two years ago, before we knew much about the Schick test, where five older children in one family and finally the baby twelve months old, one after another, contracted diphtheria. Cultures were made from the throats of these children every day, and when they showed any signs of the disease they were given curative doses of antitoxin, and they all recovered without complications. Much to my surprise, nearly two months afterward, the baby which was the last one to have the disease, awakened during the night hoarse and complained of sore throat. The next day there was some fever and late at night the mother telephoned me to come at once that she thought the baby had croup. I found the child had malignant diphtheria and death occurred within twenty-four hours. This baby had diphtheria and was given a clean bill of health so far as bacteriological examination of the throat was concerned after the administration of antitoxin. Within two months he had a second attack of diphtheria and died. That should be sufficient proof of the inefficacy of antitoxin as a prophylactic measure.

I would like to ask about the matter of quarantine in measles and scarlet fever: I am in accord with everything that is being done by the health authorities to prevent the spread of communicable diseases, but would like to know how it is possible to quarantine patients with measles when there is an outbreak such as recently occurred in Louisville. In one school twenty out of every hundred children had measles; in one room where there were originally fifty children there were only ten left; all the others had measles; it was the most widespread epidemic I have ever seen. The question came before the health board for decision as to when these children should be permitted to return to school, and it was decided that they should all be sent to the health department for examination to determine whether they were free from disease. How anyone can say that measles is communicable for only a definite number of days I am unable to understand. An opinion must be based upon the presence or absence of clinical signs. The same statement applies to scarlet fever, yet the child must be quarantined for forty days under the present ruling. There ought to be a more definite understanding based upon the presence or absence of clinical signs, complications, discharges, etc. In mild types of scarlet fever the child is practically well in two weeks, some of them in a much shorter time. They have no desquamation, no discharges from the ear or nose, and no throat symptoms, and the long quarantine is sometimes a great hardship.

Ben Carlos Frazier (closing): I appreciate the attitude of the members and thank them for their liberal discussion. In the time allotted I could only outline a few ideas on preventative medicine; there are hundreds of preventative measures which I could not even mention. There is nothing spectacular about the subject of preventative medicine although discussion of its various phases is always interesting. It has been worth while during the last few years and will be of greater value later because the public is becoming better educated on the subject.

It is true not all parents have cooperated with doctors and teachers, but some of them have and the number is constantly increasing. Teachers are anxious to discover physical defects in children under their care, because they know if they do not the school doctors and inspectors will. However, school doctors and nurses are sometimes a little over-zealous and exclude children from school unnecessarily. On the other hand, they occasionally overlook cases that are of tremendous importance. As an illustration: A mother recently brought one of her three children to me for examination. She said the child had been attending school regularly and neither the teacher, the school doctor nor the nurse had noticed anything wrong. The child had an eruption which upon investigation proved to be impetigo. The mother was told to keep the child home until it was well and to watch for signs of the disease in the other two. Oftentimes doctors and nurses fail to see little things because they are not looking for them; they are looking for adenoids, enlarged tonsils, bad teeth, etc., something they can see without more than a very superficial inspection.

I am thoroughly in accord with everything that has been said about distributing literature, bulletins, etc., to parents, teachers and others associated with school work. I believe this campaign of education will be worth a great deal.

A mother telephoned me a few days ago about the quality of milk being supplied to a certain school. She was referred to the health department for information. The question of handling the milk supply is very important; it is collected from several sources and delivered under the name of one firm, and when infection occurs it is often difficult to ascertain the source.

Dr. Fulton mentioned several important points in his discussion. It was impossible in a short address for me to consider every angle of this question. The Schick test is of comparatively recent introduction; it is undoubtedly of value and should be widely used. Formerly the most of us were inclined to give all members of the family in which there was a case of diphtheria—especially younger children and the mother who comes into intimate contact with the sick child—an immunizing dose of antitoxin. That was before we knew anything about the Schick test.

We are now confronted with the question whether we shall give immunizing doses of antitoxin or apply the Schick test: If there is time I am in favor of making the Schick test in all cases. It is reliable and the technique of the operation is simple. However, I have been giving immunizing doses of antitoxin ever since the agent was available, and have had only one case that was disconcerting or which disturbed me in the least. Two children in a family had diphtheria at different times and on each occasion the mother was given 1000 units of antitoxin. After the second dose she had a tremendous eruption, especially about the face, resembling an intense urticaria from which she suffered considerably.

AMEBIC DYSENTERY: CASE REPORT.*

By Granville S. Hanes, Louisville

Last November a gentleman brought his wife to my office for examination and advice. The patient gave a history of chronic diarrhoea extending over a period of four years. She was living in Mississippi when she developed diarrhoea rather suddenly. Her physician suspected amebic dysentery. He sent two or three specimens of feces to a laboratory in New Orleans which were examined with negative findings. Then he sent two or three specimens to Johns-Hopkins Hospital with similar result. She saw several physicians and then went to one of the best known clinics in this country and remained there for ten days under study. Finally it was decided to remove her gall bladder, which was done, I presume, because she complained of discomfort and pain continuously in the upper part of the abdomen. She was relieved only a short time by the operation.

Two years after her gall bladder was removed I saw her. Diarrhoea had then persisted with greater or less severity for four years. After considering her history carefully it seemed to me that it was a typical case, clinically at least, of amebic dysentery, so I proceeded to place her in the inverted posture and used the proctoscope which revealed numerous typical amebic ulcers. We cannot always tell when we observe an ulcer of the rectal wall whether it is amebic or not, but can usually do so. I curetted one of these ulcers and put the debris on a slide, then placed a few drops of coal oil over the specimen, and upon examination found numerous motile amebae.

The patient was placed under treatment, by giving one-half grain of emetine each day hypodermatically for ten days, then every other day for ten days longer. At the same time we gave her a teaspoonful of bismuth subnitrate three times a day. In addition to that she took a rectal injection each day of tannic acid solution.

She was relieved rather promptly and came to my office recently seeming to be entirely well of her dysentery.

I report this case to emphasize the following points: In examining for amebae if the material has been transported a long distance unless it is very warm weather the findings are absolutely worthless. I do not believe there is any one who can absolutely make the diagnosis of amebic dysentery, especially that due to the pathogenic type of ameba, unless he sees the organism in motion. Recently I had occasion to interrogate a physician of New Orleans, who has had a large experience with amebic patients, and he gave it as his opinion that amebae must be seen moving before a positive diagnosis could be made.

The next feature which impressed me was that this patient was kept under careful observation for amebae for ten days at the clinic I have mentioned and no amebae were found. It was finally decided that her gall bladder was responsible for her symptoms and was removed.

I know it is true that amebae behave sometimes in a very extraordinary way. It may be that change of climate and water have something to do with failure to find amebae, and at the same time the patient might have been using some astringent remedies which would have affected the motility of the amebae. One of the first studies of ameba I ever made was in a man who had been in South America and developed dysentery on his way to New Orleans aboard ship. He was very ill and was treated by the ship doctors. On arrival at New Orleans he was taken to the Tulane Hospital and kept there for three or four weeks and examined every few days for amebae which were never found. I am confident the reason amebae were not found in this case was that the patient was taking bismuth or other astringents. When patients are taking these agents the stools may be examined or a specimen obtained by curetting an ulcer, when careful study will seldom reveal a single motile ameba. This patient three years later was sent to a local hospital, at which time he was taking astringents; scrapings from the ulcers were carefully examined and no motile amebae were found. Astringent agents were discontinued, the patient was given fruits and vegetables in large amounts, and three days later the ulcers were curetted and amebae were found in great abundance. Therefore, I believe the lady to whom I first referred was perhaps taking some astringent remedies. This with the change in climate, water, etc., would account for the inability to find motilee ameba when she was examined at the clinic.

DISCUSSION:

Leon K. Baldauf: The patient in the case reported by Dr. Hanes was formerly under my care. This woman came from Mississippi and I first saw her three or four years ago. She came to me complaining of discomfort on defecation. She had been passing considerable mucus and at times some blood in the stools. We were very suspicious of amebic dysentery and for a week or two examined the stools every day for amebae. She was in the hospital and our examinations were made there. Searching that length of time for amebae in the mucus and blood and not finding them, we concluded that we were dealing with a case of mucous colitis. We know that in mucous colitis sometimes there is considerable pain in passing feces and there may be blood in the stools. I believe Dr. B. W. Bayless made a roentgen-ray examination of the patient and concluded there were some adhesions around the gall bladder and appendix and we believed these lesions in the gastro-enteric tract were the cause of her mucous colitis.

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*Read before the Louisville Medico-Chirurgical Society.

We are endebted to Dr. Hanes more than anyone else in this part of the country for the statement that where we are dealing with the disease known as mucous colitis there is some pathologic lesion in the gastro-enteric tract to account for it. We are now all of the opinion that lesions around the appendix or the gall bladder may cause mucous colitis.

We suggested to this patient that she be operated upon in Louisville, but she insisted on going to the Mayo Clinic and was there under observation for a number of weeks. They examined the stools day after day for amebae and were unable to find them. They finally came to the same conclusion we had, i. e., that it was not a case of amebic dysentery but a very severe case of mucous colitis. They did some operation on the gall bladder and removed the appendix. The patient had a rather stormy convalescence but finally recovered, and I am under the impression that at least for a year or two she was fairly comfortable. She returned to Louisville and I saw her several times. The mucus and blood had disappeared from the stools to a considerable extent; there were times for a considerable period when there was no blood and no mucus in the stools. After that, however, she did not do so well, and I was under the impression that the reason she did not get better was because of re-forming of the adhesions, etc., which would account for reappearance of her mucous colitis.

I heard four or five months ago that Dr. Hanes was treating her for amebic dysentery, that he had found amebae and she had gotten rather remarkable results.

Chas. G. Lucas: It is fortunate that this patient had her appendix and gall bladder removed before she consulted Dr. Hanes. We see a good many of these cases of amebic dysentery; they get along all right for a time and then have a relapse. I believe many of these cases are due to infection of the gall bladder and appendix. I have a patient under observation who has had three separate and distinct attacks from which she has made a perfect recovery under treatment. She was warned in 1917 that I believed she had an infected gall bladder and infected appendix and would have recurrence of her symptoms. She has had two recurrences since. In a great many of these cases both the gall bladder and the appendix are infected.

The patient mentioned by Dr. Hanes should now be permanently cured.

G. S. Hanes: Amebic dysentery is a very extraordinary affection. As Dr. Baldauf says, perhaps this patient was relieved after the operation, no doubt she was. I do not remember all the details.

Amebic dysentery can be differentiated from tuberculosis of the intestinal tract, or other bacterial infections, in this way: It seldom runs a straight-forward course. There will be periods when the patient will be almost entirely free from symptoms, then there will be a sudden recurrence. Most all these cases are worse in the summer than in the winter, because the patient eats fruits and vegetables which intensifies the condition. There is hardly an amebic case where the symptoms run a straight and even course. There is more fluctuation in this disease than in any other infection we have in the alimentary tract. I think that will account for Dr. Baldauf's remarks that the patient was at times improved. That is a characteristic of the disease.

I doubt that the gall bladder ever becomes infected with ameba although the appendix does. I doubt very seriously that infection of the appendix would account for many recurrences of ameba after the patient apparently had been well for several months, as we find some of the most difficult cases in those who have no appendices. This is an extraordinary disease, and every doctor who has treated amebic dysentery knows that the patient may be comparatively well for a period of many months, then suddenly there will be a recurrence. The folds of the colon and especially about the cecum can harbor encysted and inactive amebae for long periods, then when the conditions become right for their development there is a sudden reappearance of the symptoms. So I can hardly agree with Dr. Lucas that it is fortunate for this patient that her appendix and gall bladder were removed before she was treated for ameba.

It is remarkable that Dr. Baldauf studied this patient carefully, which I know he is capable of doing; and that the patient was also studied in the clinic mentioned for ten days; that the numerous examinations were made and no amebae found. The amebae were numerous and very active when I first saw the patient. I do not believe motile amebae were present when specimens were examined in other laboratories and just why they were not present we would all like to know.

Adolph O. Pfingst: If I remember correctly a few years ago Dr. Hanes was a strong advocate of the use of coal oil in the treatment of amebic dysentery and claimed some remarkable results from that method.

I would like to ask him if he still uses coal oil in the treatment of these cases, and if not why he discontinued it.

G. S. Hanes: Several years ago it was said by clinicians who treated many cases of amebic dysentery that it was doubtful whether the disease was ever cured on account of the recurrences as I have mentioned.

About that time we had under observation a patient with amebic infection who had just returned from the Phillipines. I recalled that on the farm I had seen my father pour coal oil on animals which were covered with vermin and in this way accomplished prompt destruction of the minute animal life. I tried coal oil by injection for the first time in this patient. The oil was injected through an appendicostomy and by the use of this agent and astringents he was cured. The young man who developed dysentery on the ship was completely cured by the use of coal oil and astringents. I used it extensively three or four years. Many patients were completely cured when kerosene and astringents were used. Of course many patients had recurrences. After emetine was discovered I seldom used kerosene.

I then made this peculiar observation: In examining for amebae under the microscope we had been using water as a means of providing a medium in which the amebae could float. The heat necessary to keep the slide warm soon evaporated the thin film of water underneath the lower glass and the amebae had no medium in which to float. I then raised the cover glass and put coal oil under it; this we know evaporates very slowly under the influence of heat. We found that amebae could be kept living in coal oil for twenty-four hours, i. e., when they were literally bathed in it. Then, of course, our faith in the efficacy of coal oil as an amebacide was shattered.

I have been asked many times the question Dr. Pfingst has propounded, and have been embarrassed frequently as may be imagined. The only reason I can give for the benefit produced by this agent is that the ulcerated and sensitive bowel will tolerate coal oil; in fact, it is a most effective sedative. Patients say they feel a sense of comfort when it is injected. They, therefore retain it over long periods. Patients have often said they had seen oil floating when at stool six or seven days after very full injections. I believe its benefits as a remedial agent in these cases depend upon its sedative influence, the long period of time it remains in the colon and the undesirable habitat it produces for amebae.

SYPHILITIC DESTRUCTION OF BONE AND SOFT PARTS: CASE REPORT WITH COMMENTS.*

By William J. Young, Louisville.

L. F., a female, white, aged thirty-three years, married in 1908, no children. Family history unimportant. Her husband died two years ago from pulmonary tuberculosis.

Six months after marriage she had what was presumed to be Neisserian infection, and two months later a number of sores appeared in the vagina and she had a generalized cutaneous eruption which she says did not itch. The eruption gradually faded, and the vaginal sores disappeared within about three months.

The patient says she had one miscarriage in 1909 and another in 1910. In 1911 a local surgeon performed celiotomy for chronic appendicitis and removed an ovarian cyst at the same time. A few months later there was some hemorrhage from the right kidney; the urine was examined and tubercle bacilli found. In 1912 the surgeon removed a tumor from the right scapula which upon examination was pronounced tubercular.

She first noticed pain and swelling of the right leg between knee and ankle about the time the shoulder tumor was excised. The bone of the leg was curretted. During the following three years the bone was curretted nine additional times at intervals of six to ten weeks. Pain and swelling of the left leg began three years after the right, the soft tissues being principally involved in a chronic destructive process.

The patient was admitted to the Louisville City Hospital on August 27, 1920. Examination showed a number of ulcerated areas on anterior aspect of both legs between the knee and ankle, with numerous scars of healed lesions and considerable enlargement of the soft parts. Diagnosis: lesions due to tertiary lues: Wassermann (blood) test four-plus.

Treatment: Between August 27th and October 15th, 1920, the patient was given seven intravenous injections of arsphenamin; between October 20th, 1920, and January 6th, 1921, eleven intramuscular injections of mercury salicylate; between January 9th and February 11, six doses of arsphenamin; between February 16th, and March 24th, six doses of mercury. Treatment was followed by rapid improvement with resolution of local skin manifestations.

Without desiring to criticize the general surgeon I believe this case illustrates a point which should be remembered by every practitioner of medicine, i. e., the possibility of what may and does happen when the main issue is overlooked or undiscovered. In this instance the scapular tumor excised was reported tubercular; the urine from the right kidney contained tubercle bacilli; and the surgeon had every reason for believing that the lesion of the bone was due to the same cause. However, there was sufficient evidence pointing to gummatous formation involving the skin and soft tissues at the time I saw the patient to suggest the presence of generalized lues. The subsequent rapid improvement in both integumental and osseous lesions under proper syphilitic treatment left no dôubt as to the nature of the trouble.

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*Read before the Jefferson County Medical Society.

The case shows the importance of (a) careful clinical examination in every bone infection, (b) Roentgen-ray investigation, (c) the Wassermann reaction, and (d) the therapeutic test. It is reasonable to assume that had any one of these procedures been intelligently applied in this case the patient might have been saved not only needless surgical operations with the accompanying pain but also the resulting deformity.

Since we are becoming more painstaking in our examination of patients with bone lesions the percentage of osseous lues in bone infection is found to be about thirty per cent. This would indicate the importance of eliminating lues in every bone lesion coming under observation.

In the diagnosis most of us are content to rely on a negative Wassermann reaction and the x-ray findings, and often these will suffice; but in many cases a therapeutic test is required before lues can be positively excluded.

I am presenting this case in the hope of preventing future errors of this kind, i. e., not considering lues as a factor in the production of osseous lesions.

The radiogram is reproduced to show how little bone destruction is present after ten currettments and three years infection from lues with no general treatment for nine years, followed by the treatment detailed.

DISCUSSION:

Orville R. Miller: I had the privilege of observing the patient mentioned by Dr. Young in the ward at the city hospital. I saw her about the time treatment was commenced, and also had the opportunity of seeing her afterward, and know the results obtained were all that could be hoped for. The case emphasized what Dr. Young has said about the importance of Wassermann test in bone lesions where there seems any doubt concerning the diagnosis.

I recall having heard it said that syphilis seldom attacked the joints, that the shafts of the long bones were more frequently involved. I made that statement before another medical society in the city, and Dr. Herbert Bronner claimed that the joints were attacked more frequently than is suspected. I have seen patients with bone lesions thought to be tubercular which the Wassermann tests have shown to be syphilitic. I believe a great many cases in the past have been treated for bone tuberculosis where the lesions were syphilitic.

In the case reported there was evidently periostitis rather than osteomyelitis which accounts for the slight bone destruction.

Robt. T. Pirtle: The case Dr. Young has reported shows the difficulties which may be encountered in the differential diagnosis between tuberculosis and syphilis where the patient presents bony lesions. In some cases I believe there is a mixed infection and this further complicates the diagnosis.

A girl seven years old was admitted to the children's hospital about a year ago with typical symptoms of cervical Potts disease. Motion was limited and the tissues of the neck were considerably thickened. A traction apparatus was applied but caused so much pain that it had to be discontinued. It then occurred to me that there might be a mixed infection. Wassermann examination of the blood showed four-plus. Under the roentgen-ray there did not seem to be complete destruction of the vertebra which is usually seen in tuberculosis of the cervical region; there was considerable thickening of one of the vertebra with narrowing of the inter-vertebral space. The patient was referred to Dr. Young's clinic at the city hospital and he gave her a course of arsphenamin. Improvement has been rapid, swelling of the neck has subsided, the child can now move her head antero-posteriorly and laterally without pain. This case shows that we cannot be too careful in the diagnosis of bone lesions and that a Wassermann test should always be made before arriving at a definite conclusion.

I agree with Dr. Miller that many times tuberculosis of bone has been diagnosed when the trouble was really syphilis or mixed infection. Under anti-leutic treatment patients often show greater improvement than under the older methods of management.

Wm. J. Young (closing) : The most interesting feature in the case presented is that the radiogram shows very little destruction of bone. We would expect greater destruction after an ostitis or periostitis of long-standing. For a number of years the patient stated she was unable to bear her weight on the right leg which was the one first involved. From the history and the clinical aspects of the case those who saw her first had every reason to believe tubercular infection was responsible for the trouble. Wassermann test had not been made until the patient came under my observation.

The case further shows how quickly syphilitic lesions of the bone and soft parts respond to arsphenamine and mercury properly administered.

TRAUMATIC NEUROSIS*

By W. E. Gardner, Louisville

There is, perhaps, no subject of more interest to the internist, the surgeon and the neurologist, and at the same time as little understood, as that of traumatic neurosis.

Injuries may affect the nervous system in different ways, and we shall not consider here the symptoms and clinical conditions caused by gross lesions of the brain and spinal cord, and of the peripheral nerves, where there are definite and well known organic lesions, as the result of injury, but pay more special attention to those vague, morbid conditions which arise from concussion, whether directly affecting the central nervous system or which are conveyed to the brain by means of the sensory nerves.

These are the conditions which are usually referred to under the heading of traumatic neurosis, and the symptoms are in many points identical with the neurosis and psychosis of hysteria, neurasthenia and hypochondria. There is usually a combination of the symptoms of hysteria and neurasthenia in these conditions, and the syndrone may be a very complex one. In fact, there have been a great many patients with so-called "shell shock" presenting themselvevs for examination during the past two years, who have given a history of an injury to the head or some peripheral portion of the body while engaged in service, and while many show no evidence of any organic disease of the brain or nervous system, yet some are undoubtedly cases of traumatic neurosis presenting symptoms not unlike those observed following an injury in civil life.

In the early stages of the war especial stress was laid upon the physical effects of shell explosion which found expression in the term "shell shock," but as the war progressed the physical conception of the war neurosis was gradually replaced by the opinion that the vast majority of cases depend upon a process of causation in which the factors are essentially mental. In other words, the shell explosion was only the spark which released deep-seated psychical forces due to the general stress and strain of the warfare itself, and in many cases there was already a pre-existing neuropathic tendency in the individual. While a traumatic neurosis may develop in a hitherto perfectly normal and healthy individual, yet the neuropathic and toxic diatheses facilitate the development of this neurosis.

Cases of this sort were first recognized and well described by Erichsen in 1886, but it was not until the investigations of Oppenheim in 1889 that the disease was clearly differentiated and received its present name.

The recognition of such a disease has always met with more or less opposition, especially by French writers, and later by Schultze, Hoffman, and Mendel, who maintained that the disease was either hysteria or neurasthenia of traumatic origin.

At present there is no adequate explanation of the pathology of the disease. Westphal and his school claim that there is an organic basis to be found in changes of the central nervous system. Charcot regards the disease as closely related to the hypnotic condition, because the disease picture wholly resembles the picture of a firmly rooted auto-suggestion. The psychical origin of the disease is the most generally accepted view.

In traumatic neurosis there are changing and transitory nervous disturbances to be distinguished from the psychosis by the fact that the symptoms do not involve the mental field, but in practice, psychosis without nervous symptoms or neuroses without mental symptoms are not usually encountered. Hence, it is rare that we have a traumatic neurosis pure and simple without some symptoms of a psychosis complicating the picture.

Mental shock plays an important part in the etiology of this morbid condition, and in many instances is undoubtedly the sole cause. Accidents in which a physical trauma is associated with a mental shock, as in a railway accident, are especially likely to produce this neurosis.

An injury involving even a peripheral part of the body, such as a hand or foot, may result in this condition. In such instances, however, there has usually been severe concussion of the affected part or some great mental shock.

Some of the paralytic conditions following a stroke of lightning, may be regarded as traumatic neurosis. In such cases symptoms of the functional neurosis are often associated with signs of an actual organic nerve lesion. Such neurosis have often been observed after an electrical shock, such as coming in contact with electrical currents in the falling of live trolley wires, etc. The symptoms sometimes appear immediately after the accident, but days, weeks, or even months, may pass before they develop.

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*Read before the Louisville Medico-Chirurgical Society.

Pain in the affected part is usually the first complaint and is the chief subjective trouble during the whole course of the disease. In the neuroses which follow a railway accident, the pain is usually situated in the back, the sacral, or occipital regions.

If the mechanical concussion has directly affected the brain, as an injury to the head in a railway accident, or if the injury has been associated with great mental excitement, other symptoms of a mental nature will develop, such as hypochondriacal melancholia which is manifested by the facial expression; the patient becomes gloomy and depressed; the patient's attention becomes turned in on himself and he loses interest in the outside world. There is usually no real impairment of the intelligence, but the memory may appear weak on account of lack of attention and interest in outside matters. Progressive dementia is very rare. Marked modifications in character have been noted as a result of injuries to the head. Headache and vertigo are prominent symptoms of the neurosis following injuries to the head.

The giddiness may cause the patient to fall at times, and there may even be attacks of complete unconsciousness. There may be convulsive attacks simulating epilepsy but without complete loss of consciousness.

Symptoms of neurasthenia often appear, such as insomnia, muscular weakness, exaggeration of the tendon reflexes, increase of the mechanical excitability of the muscles and nerves with cardiac and vascular symptoms. Acceleration of the pulse is common, which is still further increased by slight exertion and mental depression. Irregularity of the heart's action is less common, and a physical examination of the heart usually reveals no abnormality.

Vasomotor disturbances are present in the majority of cases, such as cyanosis of more or less extensive areas of the skin, slight redness of the face, throat, thorax and nape of the neck. There may be localized edema and even dermographia.

The motor weakness is often accompanied by tremor, which is usually increased by introspection and self-observation, and will often disappear if the patient's attention can be distracted.

In addition to the inhibition of movements caused by the general muscular weakness, paralysis may be present. This differs so essentially from that caused by organic disease of the nervous system, and resembles so completely the paralysis of hysteria, that it is regarded by Charcot and others as entirely identical with it.

After a railway accident or concussion of the spinal region, the paralysis may take the form of paraplegia. Hemiplegia, however, is the most common form seen, and it is to be particularly noted that there is no involvement of the facial and hypoglossal nerves in this functional paralysis as there is always in an organic hemiplegia.

The paralysis is often limited to one extremity and the fact that unilateral paralysis always develops on the side of the injury is of great diagnostic importance. The functional hemiplegia, which is caused by an injury to the head, appears on the side of the trauma, rather than on the opposite side as would be true in an organic hemiplegia. The paralysis is sometimes flaccid, but more often accompanied by contractures as in hysteria.

If the paralysis is incomplete the effect of the obvious efforts made by the patient to move the limb may be slight. The paralysis may be absolute and one would think by a casual examination that all motion of the limb was lost, and yet it is found that only conscious and voluntary movement is impossible, as the muscles may become active during emotion or from associative or reflex causes. For instance, a patient on the point of falling held on by his hand over which he had lost all voluntary control. Another patient who was unable to move his head when asked to do so, often accompanied his words with unconscious movements of the head such as he had formerly been accustomed to make.

Disturbances of sensibility and of the special senses are very common though not constant. Pain and paresthesia of various kinds are almost always present and principally on the side of the body affected by the injury. There may be hyperesthesia limited to areas over the injured part, and anesthesia often spreading over an entire half of the body.

The sensibility to pain is specially apt to be diminished and there may even be analgesia to the prick of a pin, and yet tactile hyperesthesia of the same region.

Concentric narrowing of the field of vision is an important sensory disturbance. It usually appears in both eyes, and where there is hemianesthesia of the body, it is most marked on the injured side.

Nervous buzzing in the ears and nervous deafness are frequently noted in injuries to the head.

The patient's power of locomotion is often impaired, even without signs of paralysis, and various disturbances of the gait may arise which are often difficult to explain. The gait often resembles a spastic one on account of the rigid position in which the legs are held, due to the pain and stiffness in the back. There is often marked tremor when the patient attempts to walk.

Speech is sometimes involved. There may be stuttering and stammering, and even mutism immediately following an accident.

The pupils are usually unaffected, unless there be some organic disease present, and there is no atrophy of the optic nerve.

Gastric disturbances such as anorexia, vomiting and diarrhea are rare, and it is not unusual for the patient to increase in weight during the illness.

Polyuria, albuminuria and glycosuria are not common, but traumatic diabetes may be associated with or develop after the traumatic neurosis.

Finally, it must be remembered that an injury may at the same time give rise to an organic disease and to a neurosis, and we may therefore have a blending of symptoms of the two conditions.

An important medico-legal problem also arises as to whether a neurosis discovered in an individual can be attributed directly to an accident or had existed prior to the accident. While a shock, physical or mental, is a frequent cause of a functional nervous disease, one cannot assert this in any particular case, unless the state of health prior to the accident is known to the examiner.

Hysteria, neurasthenia, chorea or paralysis agitans may have existed in an individual before a shock was sustained, but it should be borne in mind that any of these conditions may be aggravated by the shock.

Individual predisposition should always be taken into consideration. Neuropathic individuals are more apt to suffer from any of these neurosis than normal individuals, and the least shock or comparitively slight trauma may easily disturb the workings of their nervous system.

Those whose vitality and resisting power have been lowered following a protracted infectious disease, lead intoxication, alcoholism or syphilis are very susceptible to the effects of a shock, and the neurosis will readily develop in such individuals. It is therefore important to bear this in mind in giving an estimate of the degree of the individual's suffering.

A knowledge of the previous conduct and habits of the individual is also absolutely necessary. Sexual and alcoholic excesses, sleepless nights and irregular modes of living all predispose to the development of the neurosis, and the question of just compensation cannot be decided without the complete knowledge of all factors concerned in any given case.

Diagnosis: The chief difficulty consists not in the differentiation of the traumatic neurosis from other diseases of the nervous system, but in determining whether we have to do with disease or simulation. As a workman who is injured in the course of his duties knows that he has a claim for compensation, he may represent anything that happens to be the matter with him as the result of an injury. Oppenheim states, however, that the frequency of simulation in traumatic neurosis has previously been greatly overrated, as the nature of this condition has been little understood and the patients have been examined by those who had no training in psychiatry. The fact that the same clinical conditions have been observed after injury in different countries and races, is itself a proof that we have to do with a real disease. This is further shown by the fact that precisely the same clinical condition may follow an injury in cases where there is no question of compensation.

However, the possibility of simulation and especially of exaggeration, should always be borne in mind in making a diagnosis. It is important to not enter upon an examination with a pre-formed opinion, but to make a thorough investigation as in every other case.

I shall not consume further time by an attempt to go into the details of a differential diagnosis of these conditions, as such an effort would be tedious and uninteresting without a case actually before you; and bearing in mind that all of you have access to the authorities upon this subject to which you may refer for the particular case in hand, I will only offer this suggestion, viz: Deception cannot be unmasked by the presence or absence of any one symptom or group of symptoms, and our diagnosis must depend upon the conformity of the whole clinical picture to one of the known disease symptom groups before we can say that a neurosis actually exists.

Prognosis: The lighter cases of traumatic neurosis, appearing soon after an accident may improve rapidly, but even some of these run a long course and have an unfavorable outcome. Yet after a duration of many months, or even a few years, the disease may terminate in recovery or great improvement. The prognosis is less favorable if there be pronounced focal symptoms, or general arterio-sclerosis.

Treatment: Dispel as far as possible all ideas of litigation. Next to this, employment is of the greatest value. Symptoms of the disease will often disappear rapidly as soon as litigation is settled, or the patient is compelled to go to work again.

In all cases hyprotherapy, massage, exercise, electricity, and even hypnotic suggestion are of value.

The regulation of the diet is important and proper elimination should be continued lest the patient become autotoxic and suffer even further depression of spirits and tendency to hypochondria.

In those cases known to be hysteria, a few treatments of a strong suggestive static breeze will often completely relieve the patient after the matter of compensation has been finally settled.

There are other cases, however, of true traumatic neurosis in which there is no question of compensation, where symptoms continue indefinitely despite any or all treatment that may be instituted, men who have been seriously damaged by these injuries, and yet are not afflicted with litigation neurosis. They are incapable of carrying on their former work, even though there are no localizing symptoms. Some are left with disturbances in mentality which affect their memory, disposition and powers of concentration. It may be called a functional neurosis, but it is a very definite thing and a kind of disability that one cannot weigh or measure by ordinary standards.

DISCUSSION:

John J. Moren: Traumatic neurosis or traumatic hysteria is in my opinion totally unlike shell shock. Many factors must be considered in studying this subject. Individual temperament plays an important part in the production of traumatic neurosis. While on the staff of a shell shock hospital in England many individuals were seen who had typical hysterical manifestations, also neurasthenia, traumatic neurosis, and undoubted shell shock. An additional classification not recognized by English or American observers, but which the French accept as an entity, is emotional neurosis. I believe the majority of the patients under my care in the hospital mentioned had emotional neurosis rather than hysteria or neurasthenia.

No one can make me believe that an individual who has served from one and a half to three and a half years in the army, who has accomplished everything he has attempted, who has been buried in debris two or three times, who has been exposed to shell fire and perhaps injured, who has been gassed, who has faced the privations and dangers of active warfare, and then suddenly "goes to pieces" can be classified as an hysterical subject. I recall several typical cases of this nature, but I do not believe they can be classified as hysteria.

In civil practice, when we mention traumatic neurosis, we must consider these important facts: How many of us have ever seen traumatic neurosis among physicians? Who has noticed anything in the literature about physicians suffering from "shell shock?" I have never heard of such a case. I saw several doctors and dentists with psychosis, but this was due to drugs, alcohol, and similar causes. Who has ever seen traumatic neurosis in a gilt-edged business man? Pearce Bailey wrote an account of the wreck of the so-called "millionaire's train" out of New York in which many were injured. No traumatic neurosis developed among those men. How many cases of traumatic neurosis have been noted among men working in hazardous occupations, for instance, those climbing poles and working with electric wires? I am sure there have been very few.

In the majority of instances traumatic neurosis occurs in married men who are barely living within their income. They sustain an injury while engaged in their work, and after being deprived of their income they begin to think; they conclude their employers are responsible and they want compensation. The mental attitude of the individual must always be considered in these cases. In many of them there is an emotional or psychic cause for the affection without any actual nerve injury. I do not doubt the existence of a neurasthenic condition which may be attributable to concussion; that point is not being argued. As an illustration: An active business man was injured in a city railway wreck; he had concussion. Following the accident he was altogether a changed man; he was no longer alert in business; he was neurasthenic, ill and unable to work. It was not a question of compensation because he had abundant financial resources. He suffered from what the French call "commotion neurosis" following concussion; I am not arguing against that point. I believe the majority of cases of traumatic neurosis belong to the emotional type, and when relieved of their financial embarrassment and are able to return to work their mental attitude is changed and they become normal. I do not regard these malingerers, but a natural mental attitude, a reaction from certain circumstances.

Dr. Gardner referred to the possibility of organic disease following traumatic neurosis: Spiller recorded an interesting case in which a man was supposed to have had spinal concussion, but those who examined him thought the symptoms were of functional origin. At necropsy they found acute softening of the cord. Several cases of that kind have been reported; many of them did not present typical organic signs and were classed as functional when they were really organic in origin.

Oppenheim was encouraged at the beginning of the war as early reports seemed to verify his contention that in every case of traumatic neurosis there was an organic basis; but he was finally forced to the conclusion that the majority of these cases belonged to the class known as emotional neurosis, or hysterical manifestations, and had no pathological basis.

I recall having read in a monograph published since the war that the Germans claimed the French were weak and especially susceptible to sudden concussion, and as a consequence they had a greater number of shell shock cases than the Germans. However, the facts are the Germans had at the beginning of the war nine hundred heavy cannon, whereas the French had only one hundred and fifty. When the French increased the number and size of their cannon the Germans had just as many cases of shell shock as the French if not more.

The treatment of traumatic neurosis is, for the most part, unsatisfactory. Dr. Gardner has outlined the methods generally used, and in the majority of cases should prove more or less effective. When patients of this type come to me, and there is a probability of litigation, I talk to them frankly and try to have both lawyers present. They are told "this is a case where both of you have to give and take." If the matter is placed before them in that way it usually makes both sides safe. Some of these people are stubborn and insist upon a trial. If damages are awarded their recovvery is usually prompt. However, it must be remembered that in many instances there is actual nerve injury to account for the symptoms, and in such cases even after the litigation is settled they still complain as Dr. Gardner has said. I recall one man who presented a typical picture of neurasthenia following an accident. He made every effort to return to work but the symptoms persisted and he was unable to do so. I do not believe that man was a malingerer, nor was he seeking compensation; he was ill and unable to work. I mention this merely to show that in rare instances a man who receives a shock or severe jar may develop neurasthenia and never become normal afterward. We must consider the individual factor in all these cases.

Cuthbert Thompson: While occasional cases of traumatic neurosis were observed before the war, many are seen now as a result of the war.

Dr. Moren spoke of traumatic neurosis, its relation to malingering; in the differential diagnosis of these two conditions, we must be careful to exclude all functional and nervous diseases before we make a diagnosis of malingering.

Two types of cases are likely to develop symptoms of neurosis: First, individuals originally having a weak nervous system, such individuals are especially susceptible on very slight provocation to traumatic neurosis, hysteria, psychasthenia, neurasthenia, shell shock, etc.

Second: Normal individuals with good nervous systems and perfect physical condition. In these the exposure and privations of war, the long continued hard work, or injury especially if followed by a septic condition, are the exciting causes.

The treatment of traumatic neurosis is a difficult proposition. I believe the best results are to be obtained in sanatoria where the patients can be carefully looked after and trained. Treatment in the home is usually unsatisfactory. The methods outlined by Dr. Gardner are recognized as appropriate and in many cases effective.

W. E. Gardner, (closing): The question of war neuroses covers a broad range and could only be briefly mentioned in my paper. Differentiation between hypochondria, hysteria, neurasthenia and the so-called war neuroses is sometimes difficult. There is quite a difference between simulation of symptoms and malingering. Many patients suffering from traumatic neurosis have been thought to simulate the symptoms without any conscious effort to deceive, and the symptoms bore a definite relationship to supposed trauma; while in others there may have been malingering, the affection being classified purely as "ligation neurosis."

In speaking of shell shock in my paper I had reference to individuals who had actually received an injury to the head or elsewhere about the body from shell explosions, perhaps not sufficient to produce an organic lesion yet enough to cause neurosis, and not of the war neurosis in general.

There can be no doubt that there is such a disease as traumatic neurosis. This has been shown to be true in numerous cases reported from different parts of the world. Cases have been noted in soldiers and others who were strong, robust and healthy prior to injury, and who were independent so far as their income was concerned, yet they developed neurosis following an injury. As stated by Oppenheim and others the origin of traumatic neurosis is largely psychical. There may be in the individual a nervous instability or neuropathic tendency, and the injury is the last straw or spark, as it were, which precipitates the development of symptoms.

The treatment of traumatic neurosis often taxes to the limit both the physician and the patient and much time is usually required to effect a cure. Even after the question of compensation has been adjusted it is often a long time before the patient becomes normal mentally and physically again; can take up his work and become self supporting.

Bacteria in Upper Air Passages.—Bloomfield asserts that aside from the normal flora, bacteria do not, as a rule grow free on the mucous surface of the upper air passages. Special conditions are necessary to account for the presence of foreign organisms—either a local infection, or a transient invasion.

DUODENAL ULCER IN A NEGRO, CASE REPORT*

By L. Wallace Frank, Louisville

A negro, aged twenty-six years, gave the history of having been kicked in the hypogastrium by a mule four years ago. At that time he had a great deal of pain in his abdomen and was in bed between five and six weeks. He states that during this period he had no fever, no vomiting, nor did he pass any blood with the fecal discharges.

Following this illness, in which he was treated symptomatically, he remained well for about two years. He then had a recurrence of his trouble with the development of gastric symptoms characterized by pain noted an hour and a half after meals, burning, and considerable gas in the stomach. He had no nausea or vomiting. He was under treatment at that time for about four weeks in the base hospital at Camp Taylor and improved a great deal. The treatment he stated consisted mainly of dietary regulation. He left the hospital at the end of four weeks apparently all right.

About six months ago he again had return of gastric symptoms similar to those previously present and the discomfort has continued ever since. He complains of pain after eating, nausea at times, but no vomiting. He has never passed any blood in his alvine evacuations nor has he vomited blood at any time.

Physical examination was entirely negative except for decided tenderness in the right hypochondrium in the region of the gall bladder. No blood count was made at that time; his urine was negative. Based on the history we made the diagnosis of probable adhesions following trauma to his abdomen four years ago and advised him to submit to operation.

Three days ago we did a celiotomy and found some omental adhesions, an ulcer of the duodenum with marked scarring, but no defect of the pylorus itself, the ulcer being about three-fourths of an inch beyond the pylorus. We freed the adhesions and did a classical posterior gastroenterostomy. The man has had no untoward symptoms since the operation. Of course it is too early to say anything about ultimate cure, but we feel assured that he will have no further trouble. Mayo states that ninety-eight per cent of duodenal ulcers are cured by simple gastroenterostomy, and we can see no reason why this man should fall into the two per cent class, the chances being in favor of his being in the ninety-eight per cent.

I have seen one other instance of duodenal ulcer in the negro race, and one case of gastric ulcer which I believed was specific in a negro who had a four-plus Wassermann and other evidences of syphilis. These are the only three cases of ulcer of the stomach or duodenum that I have seen in negroes. On account of the rarity of the condition and the history of the onset following trauma, I thought the case was of sufficient interest to warrant report.

Whether this man had an ulcer previously, a so-called symptomless ulcer, I do not know. It is well understood that there are a great many ulcers of the duodenum that never give any symptoms until they either perforate or cause hemorrhage. Whether this man had an ulcer before he was kicked no one can say at this time, but certainly considering the depth of the duodenum from the surface and the fact that his liver came well over it—the liver being somewhat enlarged—I do not believe the mule kick had much to do with development of the ulcer. The probability is the patient had an ulcer of the duodenum prior to the time he received the kick, and following the trauma he had peritonitis, non-infectious in character, but the recurrence of symptoms since then may be attributed entirely to the ulcer and not to the previous trauma.

DISCUSSION:

Louis Frank: I saw this man while his case was being studied and believed he had sustained some visceral injury from the previous trauma and the disturbance later ensuing was the result thereof. I was not present at the operation and only know what was found from the report which you have heard.

Incidentally I might say that in my experience at the city hospital, extending over a period of twenty-seven years, I have seen in the negro very few lesions so frequently noted in the white race; I refer particularly to gastric and duodenal ulcers, gall stones, appendicitis, renal calculi, etc. The disproportion is sufficiently great to be worthy of note. What the explanation is I do not know.

I would like to ask Dr. Dabney to tell us what is the incidence in the negro as compared to the white in the matter of tonsillar disease. My impression is that the teeth of the negro are less frequently diseased than in the white. There seems no question that apical abscesses and Riggs' disease are less common in negroes than in whites. We know that in many instances duodenal ulcers, gall stones and probably appendiceal inflammations are secondary to infections in these localities. Whether it is a fact that because negroes are lower in the scale of evolution of the human race, whether they are so slightly removed from primitive life—not exactly in their physical aspects, but from a dietary standpoint and their modes of living—that they have not developed these diseases, I do not know; but this seems a very fair conjecture. My observation in the hospital and during my earlier practice when I saw a great many negroes, is that the diseases mentioned are decidedly less in incidence than in the white race. Cystic goiter is rather common in the negro race, but toxic goiters are rare. I can recall having seen only a few goiters of the toxic type among negroes, but have seen a great many of the cystic variety. I do not know exactly what the explanation is

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*Read before the Louisville Medico-Chirurgical Society.

I believe we are often prone to overlook visceral lesions as a result of direct violence. I do not refer to gunshot wounds but other forms of violence which produce but slight injury to the surface. In many cases there is slight damage to the viscera which later gives rise to definite symptoms. For instance, a year or two ago we saw a woman who gave the history of slight abdominal trauma. The only evidence aside from pain and shock was slight tenderness over the liver and increase in the white cell count. We felt sure she had visceral injury. Operation was refused.

We saw a short time since an individual who gave the history of a crushing injury over his lower abdomen four or five years ago and he had not been well since. He complained of constant pain and had been in bed for weeks at different times. Careful roentgen-ray examination had been made but nothing definite was shown. The man was able to work at intervals for a few days, but during his exacerbations of pain his employers had to take care of him and they instructed that something be done for his relief. His abdomen was opened and the appendix removed (which I think had nothing to do with his symptoms,) but just at the brim of the pelvis over the site of his injury there was an area probably two inches from the ileo-cecal valve where four or five inches of the ileum were adherent at pelvic brim not due to any congenital deformity. The ileum was definitely fixed to the rectum at that point. I am firmly convinced that this man must have had in his original injury this loop of small intestine caught between the brim of the pelvis and the instrument of violence in such a way as to cause injury to the mesentery which resulted in the pathology found at operation. The operation was performed six weeks ago and the man's improvement has been remarkable. He began to gain in weight immediately and has written me since he went home that he feels better than he has in five years. I simply mention this case to show that internal injuries are often overlooked.

In my opinion, in the case reported, the original injury had nothing to to do with the development of duodenal ulcer, but probably did have some influence in the formation of adhesions, the omental fixation, etc., in his upper abdomen at the point of injury. We sometimes have hematoma form from comparatively slight epigastric hemorrhage, this may continue and cause rupture or change of the parietal peritoneum, the fluid may leak into the liver region or elsewhere, and produce symptoms serious in character, the formation of adhesions, etc. In the case reported, however, I think the trauma had nothing to do with the development of the ulcer.

J. P. Boulware: During my service at the Louisville City Hospital in the abdominal surgery and gynecology dispensary for the last two years I have not seen a single negress with disease of the gall bladder, duodenum, stomach or any other portion of the gastro-intestinal tract. During that time there has been one case diagnosed appendicitis in a female colored person. Of course we see more uterine myofibromata in the colored than we do in the white race. We see very few cases of cancer in colored people.

I saw the patient mentioned by Dr. L. W. Frank. In my opinion the original trauma had nothing to do with development of his duodenal ulcer. The man probably had local peritonitis as a result of his injury which accounted for the formation of adhesions as described by Dr. Frank.

S. G. Dabney: Dr. L. Frank's remarks naturally raise the question of racial immunity or proclivity to certain diseases. Some of you will remember that the late Dr. William L. Rodman wrote an extensive paper on this question a number of years ago. I remember Dr. Rodman stated that the negro was immune to certain diseases of the eye. It is well known that trachoma is extremely rare in negroes, some authorities say they never have trachoma, or at least their immunity to it is very remarkable. On the other hand, the so-called phlyctenular ophthalmia, which is at present regarded by some authorities as local tuberculosis of the eye, is very prevalent among negroes and very severe. I am confident you will find fewer adenoids in negro children than in whites, and the same statement will apply to enlarged tonsils.

The negro is very apt to have syphilitic iritis and other diseases of the eye, in fact I do not believe they are exempt to any intra-ocular disease. They are not exempt to any of the diseases resulting from inherited syphilis which may effect the eyes in many ways.

The only eye disease to which the negro seems immune is trachoma, and that is rather strange when one considers the usual mode of life and environment of the colored race.

It may be interesting to note that I have now under observation a negress with diabetic retinitis, the only case of the kind I have ever seen.

L. W. Frank (closing): The only thing I have to say in closing is that the adhesions which I failed to state in my original report, involving the omentum were below the transverse colon and were not in the region of the duodenum. There were no adhesions about the duodenum but there was marked scarring of the tissues about the site of the ulcer.

The patient made an uneventful recovery. Sutures were removed on the 12th day and patient returned home on the 13th day after the operation. He had no gastric symptoms and all his pain had ceased.

BLOOD PRESSURE*

By H. K. Orsborn, Owensboro.

The study of bloodpressure has received a great deal of attention in the last two decades and is now recognized as indispensable as a means of arriving at a diagnosis.

I shall say nothing of the physiology of bloodpressure but will deal only with its pathology. It is important that abnormal bloodpressure be detected early, in order that the condition be corrected as soon as possible.

It will be found that in nearly all pathological conditions of the system there is a change in the blood tension. It may be above or below normal.

A few years ago workers along this line believed that high bloodpressure was a condition occurring in those individuals past middle life only and was considered more a disease peculiar to old age. We now know that high bloodpressure and low bloodpressure is not a disease, but a condition which may affect individuals at any and all ages and under many conditions of life.

Abnormal arterial tension is a symptom of great importance in the study of disease, since, by it, we are enabled to make a diagnosis positive as well as a prognosis. The pathological condition governs the treatment in all cases.

Accepting the statement that bloodpressure in the normal young adult to be systolic 120 to 130 millimeters, diastolic 85 millimeters, pressures below 120 should be considered abnormal and pressures above 140 also pathological. The older the individual the higher the pressure.

The systolic pressure is more variable than the diastolic. Take, for instance, an individual whose bloodpressure should normally be systolic 150 and diastolic 100, the systolic, in many cases, may be influenced by some trivial cause to run to 160 or 170 millimeters without any material change in the diastolic pressure.

This shows the diastolic to be of much greater importance than the systolic pressure. The systolic pressure represents the highest point to which the blood tension is raised by the heart beat, the diastolic the lowest point or constant resistance by the arterial system, and the pulse pressure the difference between the two. It follows then that the pulse pressure will register the excess force which the heart must exert to overcome the peripheral resistance as shown by the diastolic tension.

To estimate correctly the tension of the blood in an individual, the measurement should be taken several times under the most favorable circumstances. If there is any doubt as to whether the hypertension is functional or organic, the patient should be put to bed and all food restricted for 18 or 20 hours. Then take the tension, and if the condition is organic, there will be but little change; if functional, the tension will be normal. This is frequently of value where we wish to exclude any influence upon the heart from distension of the stomach or nervous influence which might be present.

After we have determined beyond a doubt, that the patient has an abnormal blood tension, then we can begin to study the positive causes for such condition.

Francis Faught gives the following relations of the several pressures: "The relation of the diastolic to the systolic pressure is about as two is to three and that of the pulse pressure to the systolic pressure as one is to three." In other words the pulse pressure is about 50 per cent of the diastolic pressure. For example, if the systolic pressure is 140, the normal diastolic pressure will be approximately 95, while the pulse pressure should approximate 45 or 50.

It is a conceded fact that high bloodpressure readings vary normally within certain well defined limits, and it will readily be seen that these relations are only approximate, which, however, does not materially detract from their clinical value. Actually employed they have been found to be most valuable guides in differentiating the normal from the abnormal and in estimating the degree of overload in cardio-renal cases. A continued hypertension is to be regarded as a manifestation of nephritis until it is proven in a particular case that no kidney lesion is present. Janeway has found that 79 out of 100 cases of hyper tension had nephritis. Goodman states, "There is no definite relation as regards the high blood tension in causing nephritis." According to him it may be as high as 300 millimeters, but it will usually be found between 180 and 250 millimeters.

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*Read before the Daviess County Medical Society.

It is necessary for the pressure to be high in order to force the blood through the altered renal structure. The output of urine depends on tension, for cases with high bloodpressure excrete more urine than those with low pressure. Finck believes there is a constant relation between the systolic pressure and the amount of urine excreted.

A bloodpressure above normal puts a strain upon the heart, and the greater the pressure the greater the danger of cardiac failure. By the degree of tension we are aften enabled to judge the condition of the orifices of the heart in many cases. A high systolic tension with low diastolic pressure indicates, as a rule, aortic insufficiency. There are well marked variations in the systolic pressure from time to time which are probably due to hypertonicity of the vessel walls. In aortic stenosis the systolic is low and the diastolic high. Aortic regurgitation is manifested by high systolic pressure and low diastolic tension, as a rule, with an increased pulse pressure. In the majority of cases the diastolic pressure will run a slow as 60 millimeters, and with its characteristic pulse pressure, is sufficient alone to make a diagnosis.

There is no definite change in the blood tension in well compensated cases of mitral insufficiency.

Acute myocarditis occurring as a result of such affections as acute articular rheumatism, diphtheria, influenza, typhoid fever and scarlet fever, would naturally be associated with low pressure, due principally to the action of the toxins on the vasomotor center and secondarily to their degenerative action on the heart muscle.

In chronic myocarditis, there will be a change in the blood tension before any other symptoms appear. The systolic tension may not be above the normal, but a careful reading of the diastolic and pulse pressure will reveal the strength and normal force of the heart. The more extensive the changes in the heart muscle the greater will be the pulse pressure.

High bloodpressure is the earliest sign of chronic intestinal nephritis. If, after repeated examinations, we find a continued hypotension in an individual with no other clinical symptoms we may suspect a beginning tuberculosis, especially if the pulse pressure is below 25 millimeters. This low tension is often of value in making a diagnosis of tuberculosis long before any signs in the lungs are discovered. With this condition we should use every measure to tide the patient over the impending danger. All precautions should be thrown around these patients, and if close attention is given them, their bloodpressure being taken at regular intervals, it is probable that many persons, who would otherwise be consigned to premature graves, would recover before any other manifestations of the disease showed themselves. The only exceptions to this hypotension in tuberculosis is the association with that of arterio-sclerosis and nephritis. Tuberculosis with signs of nephritis shows a marked hypotension.

In the study of some of the infectious fevers, such as typhoid, the sphygmomanometer shows hypotension from beginnig to end. This is the most reliable index of the condition of the patient. It should be taken frequently to show the progress of the case. The pressure decreases from its inception till the termination of the disease. Hemorrhage is generally followed by a fall in tension, and perforation is usually followed by a sharp rise. The nurse should record the pressure as frequently as pulse and temperature.

In pneumonia the blood tension becomes a valuable aid when compared with the pulse rate. It is claimed that when the bloodpressure expressed in millimeters remains above the pulse rate expressed in beats per minute, the case has a favorable prognosis. If, however, the pressure goes down and the pulse goes up, immediate action should be taken, if the patient is to be saved. It is claimed also that death in pneumonia is probably due to cardiac failure, but it is caused by toxic paralysis of the vaso-constrictor center resulting in vascular stasis.

The condition of anafalaxis or "anafalactic shock" is supposed to be due to spasm of the striated muscles of the finer division of the bronchial tree, death being due to strangulation. There is with the phenomena of anafalaxis a rise in bloodpressure and then a fall. This condition is not of central origin but produced by peripheral action. Atropine brings about a relaxation of the over-distended lung, and if given before the serum it may prevent a fatal lung distension.

Cerebral hemorrhage produces decided hypertension with slow pulse. In embolism there will be marked hypotension. We will thereby receive valuable aid in making a differential diagnosis in an unconscious patient where other symptoms are not clear.

In obstetrical work the manometer is an important guide in the different stages of labor. The pressure rises with advent of pains and descends to the normal as the pains wear off. The harder the pains the higher the pressure. In the last part of the second stage the tension will rise to about 190, may reach 240 millimeters with very little drop until the completion of this stage, when it returns to normal. The careful reading of the manometer during labor imparts to the ogstetrician valuable information regarding the strength of the pains and progress of the case. It is important also that the pressure be taken at intervals during the term of gestation, as by this means the physician is better informed of the patient's condition than in any other way, and if any kidney complications should arise he may be able, with this precaution, to prevent what might result with disaster during labor.

Some of the common drugs in use have very depressing effects on the system. Among them chloral and salvarsan, and should never be given to patients with hypotension. Before giving either drug the bloodpressure should be taken, and if low, it should not be administered under any circumstances. Many sudden deaths have been attributed to an overdose of chloral, when, in fact, it was due to low bloodpressure at the time of the administration.

In surgery, many anesthetists preceed the administration of ether by nitrous oxide to the stage of analgesia and then switch off to ether. This may be done to an advantage if the bloodpressure is normal. If the tension is above normal the gas should not be used, as it itself raises bloodpressure. The operator and anesthetist should obtain as much information as possible of the patient's resistance by repeated measurements of his bloodpressure. The sphygmomanometer should be used at regular intervals during the administration of the anesthetic, for by such methods only can the surgeon be familiar with his patient's condition. The bloodpressure will warn us long before there are any other symptoms of danger in either the pulse or respiration. If the tension should fall as low as 100 millimeters stytolic, the danger line has been reached and the operation should be stopped and the saline be given. The bloodpressure should be taken immediately after the operation is completed and before the patient is removed to his room. These precautions will materially reduce the number of cases of collapse after the return of the patient to his room. There is a rise of the blood tension at the beginning of the administration of the anesthetic, produced by stimulation of the cardiomotor and vasomotor centers through excitement. Since chloroform causes marked depression of the blood tension, there may be sudden death when but little chloroform has been given. In such cases the use of the manometer may give warning which will prevent disastrious results.

Bloodpressure depends upon the vasomotor system, the energy and strength of the heart, the elasticity of the walls of the vascular system, the volume of blood circulating and peripheral resistance. Any disturbing element to the harmony of this mechanism will alter the bloodpressure.

Hypotension has not received the attention in medical literature that it should have received. It is regarded as a sequel to some disease in which the vasomotor tone is impaired. Hypertension may damage and destroy the organs of the body, yet hypotension is equally as important as hypertension as regards life. It is probable that many deaths which are attributed to heart disease and apoplexy are due to hypotension. It is reasonable to believe that this condition has its origin in some faulty metabolic disorder causing hypertension, the products of which produce overstimulation of the vasomotor center, followed by a corresponding depression. This interferes with the normal mechanism which finally brings about degenerative changes in the cardio-vascular system. This repeated relaxation and stimulation of the cardio-vascular system results in insufficient supply of normal blood to the ductless glands and various organs of the body. This faulty blood supply produces an irregularity in the normal function of these organs and later, if continued, will cause an alteration in the structure of the organ itself. This is one reason for deficient renal circulation and cause of disease of the kidneys. Another factor is some metabolic waste product which causes faulty function of the kidney.

The cause of hypertension in the average individual of the present day is the excessive use of stimulating foods, especially the abundant use of proteids, these foods causing the circulation, after the immediate stimulating effects have passed off, to become depressed. This, repeated for several years, will finally through the altered blood supply to the ductless glands, bring about a derangement of their normal function. The harmony is broken and they are impaired. The ductless glands have a marked influence on the formation of the blood, also the bloodpressure is greatly influenced by them. If these glands are not properly nourished, they will become deteriorated and their function greatly impaired or lost altogether. If they are overstimulated by food products, this continued overaction will give rise to exhaustion and there will be degenerative changes, with inactivity. The metabolic and nutritive processes of all the organs and tissues of the body depend upon the proper function of the ductless glands. These ductless glands gradually undergo impairment as we grow older, as necessarily do all the tissues of the body. This impairment may be hastened by the improper and over supply of these food products, which, through their stimulating effect, produce exhaustion of the glands.

Hypersecretion comes about by excessive stimulation from some form of poison or toxic material within the blood stream, and it is probable that there is some relation between the disturbance of the internal secretion and the vascular tonus.

The treatment of this condition consists first of the adoption of a rational system of diet, which should be begun early and systematically followed. The avoidance of all excesses which overstimulate and impair the ductless glands will be the best preventive measures and the best treatment for the advanced cases.

I am not of the opinion of some writers, that the vaso-dilators should not be used. When the tension runs above the danger line it is necessary that immediate action be taken to prevent hemorrhage or acute dilatation, and the best and most prompt means of avoiding this is venesection. In all cases where there is marked hypertension, the patient should be put to bed, elimination increased and all fluids restricted. A low diet should be given and all those conditions which are intensifying the hypertension should be actively treated. For all those cases where the danger line has not been crossed, a diet which is nutritious, but low in animal proteids should be given.

Selective baths, a systematic form of exercise, preferably taken in the open air, should be advised. The patient should visit some springs where there is pure drinking water, where he is free from the cares and worries of an active business life. He should abstain from all excesses, such as alcohol, tobacco, coffee and tea.

Where the patient cannot leave home, there is nothing which gives better results than the use of the high frequency electric current. Some therapeutists give preference to the high frequency electric baths. However, each patient should be treated individually and the cause detected, if possible. Where the high tension is associated with the rheumatic diathesis iodine preparations, either internally or externally in the form of unguents, give great relief in most cases. Iodide of potassium reduces the high pressure very effectively in many cases. The success of the treatment will depend upon the correctness of the diagnosis which has been made.

The length of our lives will depend very much upon the heart and blood vessels. If we lead lives conducive to good health, which may be accomplished by taking a proper diet, avoiding excesses, taking regular exercise after the middle period of life, have the blood-pressure taken frequently, watch for any rise of blood tension and speedily correct it, the arteries may be kept elastic for many years, even until the biblic age has been attained.

The Renal Factor in Paroxysmal Hemoglobinuria.—Silvestri presents arguments to prove that the pathologic kidney may secrete substances which have a destructive action on the erythrocytes inside the vessels in the kidney. Among his arguments is the absence of hemoglobinemia in these paroxysmal cases of hemoglobinuria brought on by chilling or long walks. There is much to sustain the assumption of auto-anaphylaxis. The nerve centers and vasomotor nerves seem to be exceptionally excitable in these cases.

Welfare Work for Infants.—Lede is member of the board which has charge of the placing out to nurse of infant wards of the state, and he summarizes the results of the work during 1913, 1919 and 1920. The death rate for the total of 329, 892 infants was 5.03, 5.88 and 4.47 in these respective years. The children getting breast milk formed 18 per cent of the whole in 1913, but only 6 per cent in 1919 and 1920.

The Ligamentum Teres as Covering for the Cystic Duct.—Burkhardt found that covering the cystic duct stump after cholecystectomy with whatever material the hepatoduodenal ligament furnished did not always afford adequate protection. Of late he has been using the round ligament as covering. The round ligament is easily applied, its use causes no particular disturbances, and especially no displacement of the abdominal organs. He has used the method so far in only four cases, but in all these the result has been excellent.

Calculus in Submaxillary Gland.—The history of Hopkins' case is typical both in symptoms and in the condemnation of teeth as the supposed cause of trouble. The calculus itself is unusual both as to its mulberry appearance and as to its chemical composition, namely, calcium oxylate. Hopkins emphasized the importance of considering the possibility of salivary calculus in cases complaining of pain in the mouth, teeth or jaws. The characteristic symptoms are swelling of the gland and pain induced by food. The diagnosis may be confirmed by roentgen-ray examination. The treatment consists in removal of the calculus, preferably through the mouth.

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ANNUAL MEETING, PADUCAH, 1922.

COUNTY SOCIETY REPORTS

Fleming—At the regular meeting, Wednesday, November 9, 1921, there were present A. S. Robertson, Merritt, C. R. and C. L. Garr and Aitkin. In the absence of President Runyan, A. S. Robertson presided. The subject of typhoid fever was announced for discussion. C. C. Merritt reported there had been about thirty adult cases in his locality during the present season, two deaths. He used baths to control temperature and gave Salol as an alimentary antiseptic, keeping his patient quiet and on liquid diet.

C. L. Carr spoke of there being so many atypical cases. He thought that those ending in 14 or 15 days were either paratyphoid or ended with the infiltration period. He thought he got better results in cases of hemorrhage from opium and lead than from hemostatic serum, always wants a good nurse and gave as liberal feeding as admissable.

C. R. Carr thought as a rule patients did best without medicine. He also referred to an atypical case where the patient came to his office for one or two weeks complaining only of a diarrhea, never having a temperature above 99.5; but during the third week had a profuse hemorrhage. He also emphasized the importance of keeping careful watch for the rose-colored spots on abdomen.

A. S. Robertson had seen twelve or fifteen cases during the present fall. He used very little medicine, only meeting symptoms as they would arise. During the present season he had seen several cases complicated with abscesses upon various parts of the body.

C. W. Aitkin referred to the culture test which our state bacteriologist now makes for us, as an important aid in early diagnosis. He thought that all elevated temperatures should be kept in bed, especially until a diagnosis is made. He advocated a more liberal and judicious feeding, and to aid in support of the heart and nervous systems with strychnine; also to give the patient sleep from sponging or, if needed, by hypnotics.

C. W. AITKIN, Secretary.

Bourbon—The Bourbon County Medical Society met at the Court House in Paris, Ky., on Thursday, November 17, 1921.

W. C. Ussery, Paris, read a paper on "Epithelioma of the Lip."

Woodfolk Barrow, Lexington, read a paper on "Cancer of the Breast."

C. G. Daugherty, Paris, read a paper on "Cancer of the Stomach, Intestines, etc."

These papers were discussed by Williams, Daugherty, Faries, Brown, Ussery and Barrow. The meeting was adjourned.

MILTON J. STERN, Secretary.

Harrison—The Harrison County Medical Society held its regular monthly meeting at Elks' Club rooms November 7, 1921. Members present Drs. Rees, Swinford, Carr, Morgan, Wryles, Petty, McIlvain, Martin, Beckett, Wells, W. B. Moore, Givens, N. W. Moore, McDowell and Frank L. Ratterman of Cincinnati.

Meeting called to order by President. Minutes of last meeting approved as read.

B. B. Petty reported case of Dermatitis Exfoliativa; discussed by J. M. Rees, Carr and N. W. Moore. J. M. Rees reported case of Diphtheria. This subject was discussed by J. E. Wells, Carr, Martin, N. W. Moore. Censors reported favorably on application of G. F. Henry for membership. On motion application was accepted and ballot spread which resulted in unanimous election of Dr. Henry.

F. L. Ratterman delivered lecture on ulcer and carcinoma of stomach and intestines, illustrated by many X-ray plates of cases.

W. B. MOORE, Secretary.

Harrison—The Harrison County Medical Society was the guest of G. A. Beckett, October 3, 1921, at Monticello Hospital, to six o'clock dinner. Members and visitors present Drs. Clark, N. W. Moore, Wells, Henry, Martin, Chamberlain, Todd, Wood, Renfro, Givens, Rees, W. B. Moore, Carr, Beckett, Swinford, McIlain, Midden, McDowell, Blout, Righter, Morgan, Rockhill of Cincinnati, and Peddicord of Falmouth. After dinner the meeting was called to order by president. Minutes of last meeting approved as read. Application of G. F. Henry for membership received and referred to censors.

S. L. Givens read paper on Importance of Correcting Errors of Refraction; discussed by McIlain. Rockhill gave a splendid illustrated lecture on Tuberculosis.

Meeting adjourned.

W. B. MOORE, Secretary.

Pike—The Pike County Medical Association met in Pikesville, Kentucky, on Monday, November 21, 1921.

W. J. Walters reported a case of face presentation. Discussed by Drs. Johnson and Bond.

H. G. Stambaugh reported a case of Ectopic Gestation which was discussed by all the members present.

After the closing of the scientific program, the society organized and elected the following officers for the coming year: President, Z. A. Thompson, Pikeville; Secretary and Treasurer, H. G. Stambaugh, Wolfpit.

At the close of the meeting the following resolutions were adopted:

First: That we pay our dues for the coming year.

Second: That we hold regular monthly meetings.

Third: That we try to make every legal doctor in the county a member of our society.

Fourth: That we report all of our contagious and communicable diseases to the County Health officer.

Fifth: That we cooperate with each other and with other organizations in fighting epidemics.

Sixth: That we will be more eagar to call for consultation when in doubt of a diagnosis.

Seventh: That our next meeting shall be held in Pikeville, Kentucky, on Monday, December 19, 1921.

HARRY GAMBILL STAMBAUGH,
Secretary.

Practical Medicine Series—Comprising eight volumes on the Year's Progress in Medicine and Surgery, under the general charge of Charles L. Mix, A. M., M. D., Professor of Physical Diagnosis in Northwestern University Medical School. Volume III., The Eye, Ear, Nose and Throat, Edited by Casey A. Wood, C. M., M. M. D., D. C. L., Albert H. Andrews, M. D., and George E. Shambaugh, M. D. Series 1921. The Year Book Publishers, 304 S. Dearborn St., Chicago, Illinois. Price $1.75.

This series is published primarily for the general practitioner, yet at the same time the arrangements in several volumes enables those interested in special subjects to buy only the parts they desire. The chapter on Hygiene of the Eye is especially interesting, also the chapters relating to the relations of lethargic encephalitis, focal infection and a number of other systemic conditions.

Potassium Content of Blood.—The potassium content of normal human blood serum amounts to rather less than 20 mg. per hundred c.c., while for whole blood the figures are eight to twelve times this amount. In a series of seven cases of nephritis with marked nitrogen retention no increase in the potassium content of the serum or whole blood was noted by Myers and Short. On the contrary, the potassium content of the whole blood was diminished, apparently due in large part to an associated secondary anemia. In none of the pathologic cases were abnormal figures for the potassium of the serum found when the serum was separated within two hours after the blood was drawn.

BOOK REVIEW

Nostrums and Quackery—Articles on the nostrum evil and allied matters affecting the public health reprinted with or without modifications from the Journal of the American Medical Association. Volume II, illustrated, 832 pages. Published by the American Medical Association, 535 N. Dearborn St., Chicago, Ill. Price $2.00

Ten years ago the American Medical Association published the first edition of the first volume of this book. A year later a second, and enlarged edition of the first volume was issued. Since that time The Journal of the American Medical Association has published, week by week, articles on the nostrum evil, quackery and allied matters affecting the public health. All this material has been collected and appears in the present volume.

Quackery can never be defended; the "patent medicine" business, however, need not be fundamentally fraudulent. There is a place for home remedies for the self-treatment of simple ailments. Unfortunately the home remedies of today are, generally speaking, those secret nostrums commonly called "patent medicines and the methods of "patent medicine" promotion make these products a menace to the public health. The average "patent medicine" is so advertised as to frighten well people into the belief that they are sick for no other purpose than that of causing them to purchase the nostrums.

The present volume is a veritable encyclopedia of information on the subjects it treats. The book contains nineteen chapters. The titles of some of these are: "Alcohol, Tobacco and Drug Habit Cures," Consumption Cures," "Cosmetic Nostrums," "Deafness Cures," "Epilepsy Cures," "Female Weakness Cures," "Nostrums for Kidney Disease and Diabetes," "Medical Institutes," "Miscellaneous Nostrums," "Obesity Cures," "Quackery of the Drugless Type" and Tonics, Bitters, Etc."

This partial list of chapters gives but a poor idea of the vast fund of information contained in the book. To make the volume still more valuable it contains an index of twenty-two pages, two columns to the page, which includes references to every article appearing in the first volume of "Nostrums and Quackery" as well as to all articles in the present volume.

The book is free from stilted or highly technical language. The articles have evidently been written with the idea that the facts they contain belong to the public. In the preface, it is emphasized that the work which this volume represents is wholly educational in character—not punitive. "The matter that appears in this book has been prepared and written in no spirit of malice and with no object except of laying before the public certain facts the knowledge of which is essential to a proper conception of community health," and is well worthy of a place in the book shelves of every physician interested in protecting the people from imposition and fraud.

The Glands Regulating Personality— By Louis Berman, M. D., Associate in Biological Chemistry, Columbia University; Physician to the Special Health Clinic, Lenox Hill Hospital.

Why do individuals differ? Why does one man succeed, while another fails under the same conditions? What divides them into so-called "types?"

The author shows how man's individuality is controlled by the quality and quantity of internal secretions acting in him.

Based on the most recent researches in physiology and psychology, there is a convincing quality in what Dr. Berman says, a fascinating portrayal of the personalities of men, a charm of style—all making this an absorbing book and one of decided value to him who is interested in human beings.

The Macmillan Company, Publishers, New York.

Practical Medicine Series—Comprising eight volumes on the Year's Progress in Medicine and Surgery, under the General Editorial Charge of Charles L. Mix, A. M., M. D., Professor of Physical Diagnosis in Northwestern Medical School. Volume II. General Surgery. Edited by Albert J. Oschner, M. D., F. R. S., LL. D., F. A. C. S., Surgeon in Chief Augustana and St. Mary's of Nazareth Hospitals, Professor of Surgery Medical Department of State University of Illinois. Series 1921. The Year Book Publishers, 304 South Dearborn St., Chicago, Illinois. Price $2.50. The editor, Dr. Oschner, makes the following comments on the purpose of the book:

During the past year surgical literature has again taken up a more normal course, so that we are able to bring before our readers a great wealth and variety of material.

We have tried again to make our abstracts and discussions sufficiently full to give a clear idea of what the authors of the various articles desire to bring to the attention of the profession.

We have been able to bring more material from continental Europe than was possible during the period of the War and hope to attain quite normal proportions in our next volume.

Reports of late results of war surgery are slowly beginning to appear which will serve to make a review of the articles on corresponding subjects which appeared during the War especially interesting and instructive.

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EDITORIAL

ANNUAL DUES

Your dues to the State Association should be mailed to your county secretary today. It is of special importance this year that we keep a strong organization in every county. There has never been a time when we were accomplishing so much, but we are in serious danger of having our usefulness limited because of a lack of understanding of the profession's aims and objects. There never was a time when it was as important for every member of the profession to be seriously considering his relationship to the public and helping to see that they are all right.

It is well to remember that the JOURNAL is open to its members for the discussion of its affairs. We have so many good scientific pages in our JOURNAL every month now, that there is always danger of our getting satisfied with it and not bestirring ourselves to make contributions particularly along lines of policy that are so necessary if we are to attain our best usefulness. The general officers of the council of the Association have been in more than half of the county societies of the State within the past two months. Many members have made valuable contributions and suggestions in the make up of the policy that should be pursued. This would be of even greater value if they were written for and published in the JOURNAL so that all of the members could see them.

Every now and then it comes to us that some physician somewhere is dissatisfied about something. Write it to the JOURNAL, and the publicity given it there will guard any evil and help to set things right. At any rate, remember that the county secretary receives the only gratitude we can show him of the appreciation that the profession of the county feels for it without him having to worry about collections.

THE NATIONAL HEALTH EXPOSITION

While there have been wonderful advances during the past twenty-five years in the fields of medicine, surgery, dentistry, nursing, hospitalization, pharmacology, chemistry, bacteriology, etc., there has not been a corresponding advance in popular knowledge concerning these matters. The professional man is very familiar with the most advanced methods of preventing disease and thereby reducing sickness and death rate, but the layman must be considered as almost totally ignorant of these means and he is therefore a prey to every cult and nostrum any ingenious person may invent.

The writer's experience is that every livery stable man, every blacksmith, every engine oiler, street cleaner or what you will in the cosmos of every day labor is able to advise all who will pay attention, that he has a sure and positive cure for one or all of the bodily ills which seem to be our inherited portion.

Moreover, it must be admitted that the average man is no longer a student except of those matters which relate to his daily bread and the accumulation of a competence. An immense volume of propaganda undoubtedly produces results, but Health Departments and members of the profession neither have the money, nor the means to secure it, with which to carry on any intensive scheme of education or propaganda.

Consequently as the human being finds life easier in this country, illness and death also find ''life'' easier and even the least humanitarian of us cannot help but feel that any available means must be made use of to reduce our extremely serious loss from preventable disease in this country.

Almost every contribution to charity has a direct on indirect relation to preventable disease and its consequences. The Surgeon General's report on men inducted into the army, or candidates for induction, during the World War, indicates that at least one-third of our young men are a charge upon their respective families, at least a part of the time during the year.

Total deaths in Kentucky in 1920 were 28,283. Of these, forty-four in every hundred might have been prevented. The total of those who died from preventable diseases was 12,685. The loss to the people of the State from disease and death that could be avoided is three times the total amount of taxes paid into the State treasury. More children die from so-called simple diseases of Whooping Cough and Measles than die of all ages from the serious diseases of Smallpox, Tetanus, and Typhoid Fever combined. More babies die before they are one year old than the total deaths during any ten year age period, hence ten times more lives could be saved the first year than in any other period. Infants under one year who died in Kentucky last year totalled 4,558. All the medical science in the world will not lower death rates until the people learn to do the things necessary to avoid and prevent sickness. The estimated annual loss for the city of Louisville because of death and sickness from preventable disease is estimated conservatively at $5,670,000.00.

Professional men, realizing the seriousness of the existing situation, have sought for many a long day to discover the best and quickest means of reaching and informing the general public. They have only partly succeeded. There are not enough men to make a sufficient number of public addresses, to reach the bulk of the population and it is indeed doubtful that the public could be induced, while in health, to listen to academic utterances on the subject of health preservation and disease prevention.

With all other means exhausted or financially beyond reach, we have finally arrived at the conclusion that the most obvious method is the best and the easiest one for us to make use of. This is the method of visual education.

The National Health Exposition at Louisville, February 1-9, was conceived as the means of visual education. Realizing that only great enterprises attract sufficient popular attention to insure large attendance and consequent general attention, the Exposition has been expanded to occupy 60,000 square feet of floor space in the Jefferson County Armory and the personnel taking part in the exhibits, demonstrations, programs and exercises number nearly five thousand. The magnitude of the Exposition is therefore apparent. Brief thought on the subject indicates that the participation of so many active people spells unusual merit in the preparation of exhibits. A careful study of the Chicago, Cincinnati and New York Health Expositions has resulted in the elimination of some of their features and the incorporation of others in the National Health Exposition. Moreover the people of Kentucky are not backward in the development of new ideas along the lines of visual education, consequently professional and amateur talent are combined in the building of this wonderful Exposition and the prediction is already made as the result of close observation of those things already designed for these displays, that this Exposition will exceed in beauty, entertainment and education, any previous large educational exposition ever held in the United States, if not in the world.

Governor Edwin P. Morrow has issued a proclamation of Health Fortnight in relation to the Health Exposition, calling upon every citizen of Kentucky to attend the Exposition if this is possible, and it is safe to say that a very considerable reduction of the death rate is in prospect as result of this enterprise.

Health Fortnight will begin with the United States Public Health Institute on January 30. The Exposition will open Wednesday, February 1, and continue through February 9th. During this period it is expected that approximately 150,000 people will pass through its gates. Seldom, if ever, has this section of the country witnessed so remarkable a popular scientific exhibition and display of products designed to promote human comfort and happiness than in the National Health Exposition.

The Central Passenger Association and the Southeastern Passenger Association have granted reduced fares on account of the National Health Exposition at Louisville, which thus provides a reduced rate in a radius of approximately 175 miles from Louisville. Visitors to the Exposition should inquire of their local passenger agents for rates. Tickets good for five days will be sold on three days at the rate of fare and a half for the round trip and half fare for children of half fare age. The days and dates on which these reduced fare tickets will be sold are Monday, January 30, Wednesday, February 1, and Tuesday, February 7.

Endemic Goiter in Mexico.— The data presented show that goiter is very prevalent in certain parts of Mexico, up to 20 or 25 per cent in parts of the state of Guerrero. It does not seem to be endemic in the central states nor in the federal district nor in the peninsula of lower California, but the province of Mexico has a few endemic foci, as also the states on the West coast, and Vera Cruz has certain zones with 8 to 10 per cent of the population affected.

THE LOUISVILLE PUBLIC HEALTH INSTITUTE.

In this issue of the JOURNAL is published the complete program of the Louisville Public Health Institute which will be held in the State Board of Health Building, January 30 to February 4, 1922. This Institute is given under the auspices of the United States Public Health Service, the State Board of Health and the School of Public Health, University of Louisville, National Health Association, Jefferson County Board of Health, Women's City Club, Louisville Rotary Club, and the Louisville City Health Department. The Institute includes the Annual School for County and City Health Officers and Public Health Nurses of Kentucky for the year 1922, called in session according to section 2054, Kentucky Statutes. As special features on Monday night, January 30, at 6 P. M., a dinner will be given by the Louisville Conference of Social Workers, after which there will be a public meeting, addressed by Dr. Anna Rude, Director, Division of Child Hygiene, U. S. Children's Bureau.

VISITS AND CLINICS

Venereal disease clinics at City Hospital and Jefferson County Jail.

Prenatal and child-health clinics at the University of Louisville, Children's Hospital and Health Exposition.

The State and county tuberculosis sanatoria.

State Hospital for the Insane.

Kentucky School for the Blind.

A special clinic on trachoma will be arranged by Dr. John McMullen, of the United States Public Health Service.

A Social Hygiene Conference for Women will be held on Wednesday, Thursday and Friday. The purpose of this conference will be fully explained at the public meeting Tuesday evening. All women are cordially invited to attend.

Following the institute those interested may take special courses in the laboratories of the School of Public Health and the State Board of Health. Nurses and physicians contemplating a course in public health may enter the regular term in the School of Public Health of the University of Louisville, which begins February 1.

The entire Institute is open and free to the public. All health and welfare workers and all persons interested in any form of community betterment will find these meetings of great benefit.

OFFICIAL ANNOUNCEMENTS

PROGRAM OF THE LOUISVILLE PUBLIC HEALTH INSTITUTE.

MONDAY, JANUARY 30, 1922.

MORNING SESSION

A. T. McCormack, M. D., Chairman,
State Health Officer.

9:00 a. m. Protective Social Work....
Valeria Parker, M. D.

Dangerous Conditions That Bring About Delinquency.

10:00 a. m. Syphilis, the Early Diagnosis ....John H. Stokes, M. D.

11:00 a. m. The Principles of Public Health Education............................
Frederic R. Green, M. D.

12:00 Noon. Luncheon.

AFTERNOON SESSION

Mrs. Jane Teare Dahlman, R. N., Chairman,
Director, Bureau of Public Health Education.

1:30 p. m. Child Hygiene...................
Mary Riggs Noble, M. D.

2:30 p. m. Public Health Nursing ....
Frances Brink, R. N.

How It Began—Its Present Developments.

3:30 p. m. The Modern Conception of Tuberculosis, ...George Palmer, M. D.

4:30 p. m. The Clinical Interpretation of Diagnostic Tests......................
John H. Stokes, M. D.

PUBLIC MEETINGS

6:00 p. m. Conference of Social Workers ....Dinner Meeting

Our Children's Welfare—A National Problem which Must Be Settled by the States, ...Anna Rude, M. D.

8:00 p. m. The Invisible World—A Health Travelogue ....
Frederic R. Green, M. D.

8:00 p. m. Jefferson County Medical Society
Child Hygiene ....Mary Riggs Noble, M. D.

TUESDAY, JANUARY 31, 1922.

MORNING SESSION

J. N. McCormack, M. D., Chairman
Director, Bureau of Sanitation.

9:00 a. m Clinical Land Marks of Late Syphilis ....John H. Stokes, M. D.

10:00 a. m. Tuberculosis as a Public Health Problem ....George T. Palmer, M. D.

11:00 a. m. Present Day Conceptions About Food in Relation to Health .... Emma Dolfinger, M. S.

12:00 Noon. Luncheon.

AFTERNOON SESSION

Phillip E. Blackerby, M. D., Chairman
Director, Bureau of County Health Work

1:30 p. m. The Delinquent and the Law ....Valeria Parker, M. D.

2:30 p. m. Child Hygiene .... Mary Riggs Noble, M. D.

3:30 p. m. Values in County Health Work.............................W. S. Rankin, M. D.

4:30 p. m. Syphilis in Mother and Child ....John H. Stokes, M. D.

SPECIAL MEETING FOR NURSES

Marian Williamson, R. N., Chairman,
Director, Bureau of Public Health Nursing

9:00 a. m. Public Health Nursing.... Frances Brink, R. N.

The Inter-Relation of Nursing Organizations.

PUBLIC MEETINGS

Mrs. H. G. Reynolds, Paducah, Chairman,
President, Kentucky Federation of Women's Clubs.

8:00 p. m. Women and Public Health, Valeria Parker, M. D.

Problems of Public Health............ W. S. Rankin, M. D.

Aim of the Social Hygiene Conferences for Women .... Rachelle Yarros, M. D.

WEDNESDAY, FEBRUARY 1, 1922.

MORNING SESSION

James S. Lock, M. D., Chairman,
Director, Bureau of Tuberculosis.

9:00 a. m. The Fundamental Principles of the Arsphenamine and Mercurial Phases of Treatment............ John H. Stokes, M. D.

10:00 a. m. Tuberculosis and the Child Problem ....George T. Palmer, M. D.

11:00 a. m. Nutrition as a School Health Problem ....Emma Dolfinger, M. S.

12:00 Noon. Luncheon.

AFTERNOON SESSION

Annie S. Veech, M. D., Chairman
Director, Bureau of Child Hygiene.

1:30 p. m. Child Hygiene .... Mary Riggs Noble, M. D.

2:30 p. m. Detention and Care of Girls, ...Valeria Parker, M. D.

3:30 p. m. Food Poisoning .... Milton Rosenau, M. D.

4:30 p. m. Application of Fundamental Principles to Various Treatment Problems .... John H. Stokes, M. D.

SPECIAL MEETING FOR NURSES

Marian Williamson, R. N. Chairman,
Director, Bureau of Public Health Nursing

9:00 a. m. What Public Health Nurses Should Know About Their Community ....Frances Brink, R. N.

PUBLIC MEETING

Mrs. Charles Semple, Chairman.
Chairman, Legislation Committee, Federation of Women's Clubs.

8:00 p. m. Milk ....M. J. Rosenau, M. D.

The Modern Conception of Tuberculosis, ...George T. Palmer, M. D.

THURSDAY, FEBRUARY 2, 1922

MORNING SESSION

Lillian H. South, M. D., Chairman
Director Bureau of Bacteriology.

9:00 a. m. Management of Health Centers .... John R. McDowell, M. D.

10:00 a. m. Medical Social Work— Rachelle Yarros, M. D.

11:00 a. m. Mental Hygiene .... Frankwood Williams, M. D.

12:00 Noon. Luncheon.

AFTERNOON SESSION

J. N. McCormack, M. D. Chairman,
Director Bureau of Sanitation.

1:30 p. m. What Special Training Should Public Health Nurses Have? Frances Brink, R. N.

2:30 p. m. Influenza, Milton Rosenau, M. D.

3:30 p. m. Public Health Administration in Indiana ....J. N. Hurty, M. D.

4:30 p. m. Diphtheria ....Lillian South, M. D.

NOON LUNCHEON SPEECHES

12:30 Rotary Club ....Milton Rosenau, M. D.

12:30 Exchange Club .... Frankwood Williams, M. D.

3:30 p. m. Round Table for Public Health Nurses .... Conducted by Marian Williamson, R. N.

PUBLIC MEETING

Hon. Huston Quin, Chairman,
Mayor of Louisville.

8:00 p. m. Hospital Social Service.... Rachelle Yarros, M. D.

Mental Hygiene ....
Frankwood Williams, M. D.

FRIDAY, FEBRUARY 3, 1922

MORNING SESSION

Jethra Hancock, M. D., Chairman,
Director, Bureau of Venereal Diseases.

9:00 a. m. Medical Social Service....
Rachelle Yarros, M. D.

10:00 a. m. Control of Communicable Diseases .... W. A. Evans, M. D.

Lecture I.

11:00 a. m. Mental Hygiene ....
Frankwood Williams, M. D.

12:00 Noon. Luncheon

AFTERNOON SESSION

Sarah H. Vance, B. S., Chairman,
Director, Bureau of Food and Drugs.

1:30 p. m. Public Health Nursing in Kentucky .... Marian Williamson, R. N.

2:30 p. m. Control of Communicable Diseases .... W. A. Evans, M. D.

3:30 p. m. .... C. C. Applewhite, M. D.

4:30 p. m. The Next Steps in Food Control____________________ R. M. Allen, New York City, Chief Chemist Ward Bakeries.

PUBLIC MEETING

Hon. J. C. W. Beckham, Chairman,
Ex-Governor of Kentucky and Ex-United States Senator.

8:00 p. m. The Tenth Commandment
W. A. Evans, M. D.

The Call of the Country ....
C. C. Applewhite, M. D.

SATURDAY, FEBRUARY 4, 1922.

MORNING SESSION

Phillip E. Blackerby, M. D., Chairman,
Director, Bureau of County Health Work

9:00 a. m. Optometry and Public Health .... Reginald Augustine, Opt. D.

10:00 a. m. Medical Social Work........
Rachelle Yarros, M. D.

11:00 a. m. Mental Hygiene ....
Frankwood Williams, M. D.

NOTE: This institute includes the Annual School for County and City Health Officers and Public Health Nurses of Kentucky, for the year 1922, called in session according to section 2054, Kentucky Statutes.

SCIENTIFIC EDITORIALS

FOR OUR MEDICAL FAMILY, IMPRESSIONS, SUGGESTIONS, CLIPPINGS.

The process of evolution and reconstruction along medical lines for the year just closing have been so great and varied that it would be a difficult task to enumerate the most important or gratifying ones without extending the length of this note too much. Next to the success of the last meeting of our State Medical Society, the organization of the Kentucky Ophthalmoligical and Oto-Laryngological Society, the progressive and aggressive work of the State Board of Health and the School of Public Health, conducted under its auspices, nothing has been more promising and augurs more for the future of Ophthalmology and Oto-Laryngology and the medical profession, as a whole, than the last meeting of the American Academy of Ophthalmology and Oto-Laryngology, which met in Philadelphia, Pa., beginning on the morning of October 17th, and closing on the evening of the 22nd.

One or two incidents occurred at this meeting that goes far to prove that science has a power to bind nations, as great or greater than religion, and nothing can so bind two nations as an interchange of educators, especially, educators along the lines of the science and art of the practice of medicine and surgery. Rivalry, competition and fraternal fellowship stimulate development and growth and tend to bring out the best within a man. For these reasons it should be a medical man's duty as well as privilege to annually or semi-annually spend a few days, weeks or months with other men engaged in work similar to that which he is doing. The relief from care and anxiety of his responsibilities at home, the stimulation and enthusiasm received from others, would result in his own recreation, make him a better physician, surgeon or specialist, as well as add to his contentment and peace of mind.

Dr. Edward Jackson, in the November issue of the American Journal of Ophthalmology, says: "The gathering of five hundred Fellows of the American Academy of Ophthalmology and Oto-Laryngology at Philadelphia, although some stayed away because they could not attend both this and an International Congress six months later, was in itself a notable achievement. But this record-breaking attendance was overshadowed by other features that made the

Academy's celebration of twenty-five years' of growth and progress of unique significance."

The lecture room of the Academy on Natural Science was packed with almost five hundred at each joint session. "Both in the graduate course and in the regular scientific meeting, in which the foreign guests repeatedly took part, the use of the projection lantern added greatly to the interest and value of every session. Many of those who opened the discussions on the papers presented had carefully prepared and written out their remarks.

But the event which promises most for the Academy and for the profession, was the adoption of the working agreement with the office of the Surgeon General of the Army for the establishment of a Museum of ophthalmic and oto-laryngologic pathology. Fellows of the Academy are to preserve their specimens and send them to the Surgeon General's office. There they will be prepared, cut, stained and mounted for microscopic study. Specimen slides will be sent out to the donor of the specimen. Others will be studied by specialists in ophthalmic or oto-laryngologic pathology who will report on them. Slides, photographs, and diagrams of important conditions will be prepared, which will be loaned to those Fellows who desire to use them for illustration or teaching."

The advance of our Science and Art is beyond the "burned bridges" of a glorious experience; infidels and atheists, very wise men, read the Bible to disprove that the wayfaring man, though a fool, need not err therein. Medical history and medical experience find none so blind as those who will not see. The result of anti-toxin, vaccination and vaccines, the positive cure of syphilis, eradication of rheumatism and malaria, hook worm and leprosy, the marvels of the x-ray and radium lay at the feet of humanity.

The noble mind claims the heritage of the errors of the past and by these experiences builds for greater things. Lesser minds can see in the past only the ashes of cremated failures, those ghosts, that they try to animate and clothe—in the valley of dry bones.

We continue to see the outstretched hands of the sick, the paralyzed, epileptic, cancerous, tubercular, the blind, the deaf and poor whom the cults have not known and we take new courage, have a better faith and a determined forward position where the cults only fail and never lead. They can never know that the battle is fought only on the firing line and in the forward movement, not by unjust criticism, objectors, non combatants or legislators. There is no flowery bed of ease on which we can reach the heights of success. Medicine lives in a record of chiseled service; the chips and cuttings are the souvenirs of those who lived and delighted in the bondage be their credit ever so small. (Medical World.)

When we find ourselves drowsy, our medical vision no longer leading us forward, when general therapy and the tedious detail and technique necessary to accurate diagnosis and successful operation, when doubts assail us and block our progress, the best thing to do is to go to school again, take medical magazines and thoughtfully read them; write medical articles, give them interest and candid experience, attend medical meetings, learn to know more scientific medical men, attend more clinics, or better still, go away and take a Post Graduate course, specialize more in the particular branch which has always appealed most to you.

These thoughts are suggested not only by my own observation but intensified by an editorial in the Medical World, December issue, and by a conversation with one of the brainiest and biggest hearted traveling men connected with one of our leading pharmaceutical firms. When questioning him on the progress of a certain medical man, who ten short years ago, had the most brilliant promises for the future which I have ever known one of his age to have, in reply to my question the old medical man said, "that boy is dropping rapidly out of line. I knew it would be this way five years ago, when I saw on his desk medical journals of half a year, their wrappers not broken, whose pages had never been opened; that man had been intoxicated by his success, was after quantity more than quality, and now is being gradually dropped, first by his profession, because of loss of interest, then by his clientele because he is more interested in quantity than in quality, and the cash remuneration for his services." With emphasis and pathos he continued, "that boy has not advanced a peg since he finished his interneship in one of our great Eastern hospitals." In reply to another question asked by me he said, "our observant and intelligent detail men sent out by our great manufacturers observed these things and little by little it has passed along, that the man is losing interest, who has ceased to read, study, and think, and the hand writing on the wall will soon spell, "Weighed in the balance and found wanting." We get out of life what we put into it, we reap what we sow, and if we give of the best of ourselves, sometimes somewhere, somehow, the best will come.

The following clippings, whose author is unknown, are suggestive, and will bear a second reading: "When you consider how much the medical profession has done in meritorious public work, in corrective work, in antitubercular propaganda, in research, etc., and then observe the different state legislatures in retrenchment on medical things, and in their failure to pass laws to back up the work of the doctors, it looks like some one was throwing the tools in the machinery and that matters of health were receiving the least consideration of all public measures. The answer is, there are just two things to do: get in touch—close touch—with the legislators and let them feel the instructive and constructive effect of the medical mind. We can send some more and many more of our own men to the state legislatures. Let the physicians who feel themselves competent step up and endeavor to get elected to their state legislature."

"Some doctors are all het up over the fact that medicine is undergoing a change of life, and is having Christian Science nervous spells and chiropractic hot flashes, and legislative hemorrhages and labor fibrosis, and sociological cancer; yet they need not, for, after the operation and climaterix 'n' everything, "Mother" will still be right on the job, pulling the home together, swabbing the throats, advising on marriage, directing the diet, bathing the children, grand and great, enjoying life and gaining in weight; having now cut a full set of uppers and lowers she is chewing her own food, and plenty of it."

"A hearty laugh doeth good like a medicine"—Proverbs.

It do. ....

It sweeps the cobwebs out of your brain. It takes the load off your chest. It drives away the blues. It lets the air out of your overdistended tires, and the car rides easier. It clears the carbon and grinds the valves. It takes the rattle out of the top and oils the springs. It quiets your timing gears and shows "Charge" on your ammeter. It oils the fan and cools the engine. It puts ether in your gasoline and pep in the motor. It cleans the windshield, polishes the lamps, and shines the body. It throws a bright gleam before you. It mends the leaky top. It invites good company. It makes the goin' good, and "speed" legal, 'n' everything. It puts joy in life and revives the fainting, depressed spirit. Let's go."

J. A. STUCKY.

ORIGINAL ARTICLES

FEDERAL CARE OF VETERANS OF THE WORLD WAR*

By Milton Board, Louisville

The close of the World War brought forth the largest Governmental problem with which this country has to deal. The Pension System, which has grown up since the Civil War; the spirit of paternalism, which has firmly taken root in our country during the last twenty-five years; the fact that there was suddenly called into action four million men of uniform age from all walks of civil life created a sentiment in favor of immediate legislation, which would reimburse, to some degree at least, those who were called upon to serve the country. By some this was considered a duty; by others a benevolence; by yet others a privilege; by all a condition which must be faced.

There were approximately five million American participants in the World War; this includes Soldiers, Sailors, Marines, Nurses, Occupational Therapy and Physio-Therapy Aides and certain clerical force. When the war was on, when soldiers were seen in the streets and on trains, when the army camps were teeming with them, when the newspapers were full of accounts from the Front, when almost every home felt the touch of war, there was a hearty response from civic organizations, which already existed or were brought into being, and a great many efforts put forth to do something for the soldier. With the war over, the uniform abandoned, many an ex-doughboy has felt himself neglected and has sometimes registered a kick, which has been heard from his precinct to the Halls of Congress.

By legislation enacted early in 1919 three Government agencies were called upon to function for the war beneficiary:

1. The War Risk Insurance Bureau, whose functions and duties were enlarged and extended.
2. The Federal Board for Vocational Training was established.
3. The United States Public Health Service, an old department of the Government, was called upon to enter a new field of action; its responsibilities enlarged, its personnel increased and its powers broadened.

It will be seen at once that Congress intended that a much broader plan for the determination of the rights of the ex-service man was contemplated than in the old pension system.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

To the War Risk Insurance Bureau was assigned the obligation of the examination of, and determination of the rights of the wounded or diseased beneficiary. If disability was held to obtain, and the mental and physical condition of the claimant would admit, he was turned over to the Federal Board, with sufficient compensation allowance to enable him to live and to learn some vocation or profession that would fit him to earn a livlihood. But, the War Risk Insurance Bureau had no medical personnel with which it could conduct these examinations. To give you some idea of the number of examinations made, I will advise that during the month of July, in Louisville alone, one thousand, three hundred and twenty-nine (1,329) examinations were made, so it was here that the U. S. Public Health Service was called upon to function. It added to its medical personnel by issuing commissions in its reserve to physicians all over the country, drawn chiefly from ex-army officers, with due credit to their military record. It soon had an army of commissioned officers and acting assistant surgeons in the field, ready to handle the situation. While conditions have not always been ideal, yet disabled veterans who have come under the care of the Public Health Service have received modern, up-to-date professional care and treatment.

It became evident very early that the two great physical problems confronting the War Risk Insurance Bureau and the U. S. Public Health Service were Tuberculosis and Neuro-Psychiatric diseases. By the submission of Public Document No. 481 of the 66th Congress, on December 5, 1919, an effort was made to analyze the situation. At that time it was estimated that within two years there would be needed for hospitalization of War Risk Insurance beneficiaries the following number of beds:

General Medical and Surgical	7,200
Tuberculosis	12,400
Neuro-Psychiatric	11,060
Total	30,660

It was also estimated that it would be some years before the crest would be reached, and in view of the fact that mental diseases so often require permanent hospitalization, yet do not produce death for many years, it would seem that this would be perhaps the greatest hospital problem. The accuracy of this estimation made nearly two years ago has been verified, but the Service has been greatly taxed to comply with the obligation suddenly thrust upon it, and much unjust criticism has resulted. Hospitals have been procured wherever possible throughout the country and Marine and Navy Hospitals have been enlarged and improved; abandoned military hospitals have been utilized, contracts have been entered into with city, State and private institutions; more recently hospitals in soldiers' homes have been made available to the end that no sick beneficiary might suffer for want of hospitalization.

Here, permit me to say that the necessity for immediate action has often required the utilization of property sometimes old and sometimes constructed for temporary purposes, so that a glance, especially by the inexperienced, will evoke criticism. A later examination, however, will show that the discharged soldier is getting attention that none but the very rich can obtain in civil life. Let me give a concrete example: In the city of Louisville is located the U. S. Marine Hospital No. 11; it has a medical staff of trained experts and a consulting staff selected from the best members of the profession in the city. It has a corps of trained nurses, and plenty of them; a well equipped department of Physio-Therapy, another of Occupational Therapy and yet another for vocational training. It has an x-ray laboratory with a trained technician; a well equipped chemical laboratory; a competent clerical force. In fact everything that may be found in a modern hospital.

This condition obtains in every Service hospital throughout the country. The personnel and equipment have been put in by the U. S. Public Health Service. Their power is limited; to provide money for the building of hospitals is a function of Congress.

A hospital does not consist simply of imposing buildings, beautiful grounds and magnificient furnishings. These things are desirable of course, but secondary to the number, ability and training of its medical and nursing personnel, supported by adequate laboratories and other agencies for the modern diagnosis and treatment of afflicted persons.

I haven't the time in a paper like this to more than touch upon other activities of the War Risk Insurance Bureau, such as the identification of the dead, the bringing home and burial of those who died abroad, the determination of insurance rights, etc. I can only mention further, in passing, that the Federal Board for Vocational Training now has some three hundred claimants from the Louisville office, engaged in learning various vocations, by which, in spite of physical handicaps, they hope to earn a livelihood upon the completion of their course.

I would like to say something of the great work that the Red Cross is doing for the investigation of the rights of claimants; its remarkable social service department and various other phases of its activities, but I am reminded that the scope of my paper is Federal Care and also that my time is about up. I do want to advise, however, that under the old law there was established in Kentucky twelve distinct Units for the examination and hospitalization of claimants. These Units were located in Louisville, Hopkinsville, Paducah, Owensboro, Bowling Green, Lebanon, Lexington, Ashland, Pikeville, Jackson, Somerset and Middlesboro, and were complete in every detail.

The present Congress, however, has already enacted a law, known as the "Sweet Bill," which radically changes the entire program of Federal care. Under this measure, just enacted, there is created directly under the President an independent bureau known as the "Veterans' Bureau." The Director of same receives a salary of $10,000.00 per year and is given large power and responsibility. The War Risk Insurance Bureau and the Federal Board for Vocational Education are abolished, and their duties transferred to the new bureau. The power to hospitalize, to maintain hospitals and contract for same, formerly a public health function, is also transferred to the new bureau. The commissioned officers now in the U. S. Public Health Service, engaged in the examination and treatment of war beneficiaries, are detailed to the new bureau. In short, Congress evidently intended to concentrate power and responsibility.

The director of the Veterans' Bureau is to establish, not to exceed, fourteen district offices with one hundred and forty sub-offices throughout the country. Our district, the seventh, will probably continue to be composed of Ohio, Indiana, and Kentucky, with headquarters at Cincinnati, while in this state the sub-offices are located at Louisville, Lexington and Hopkinsville. In each office is stationed a sufficient quota of general examiners: A specialist in tuberculosis, neuro-psychiatry; eye, ear, nose and throat; diseases of the heart and chest; genito-urinary disease and syphilis, an orthopedic and general surgeon; an x-ray man and an out-claimants' department, together with adequate laboratory and other facilities, all of which Federal machinery is rendering daily to the ex-service men the obligations assumed by a benevolent Government to those called upon to serve their country in the hour of need.

DISCUSSION

W. W. Anderson, Newport: Dr. Board has well said in the beginning of his paper that the problem presented is one of the largest in the present generation. There is much evidence tending to show that the immensity of the problem was not realized in the beginning, nor could it be without previous experience of something approaching it in magnitude. It was impossible that its size should be correctly estimated. So it is not strange the government appears to have started fishing with a pin hook and to have caught a whale. Out of this more or less unavoidable error has grown some criticism. Even if we had not erroneously estimated the extent of the problem in the beginning, its size would have made an immense problem anyway, for the necessary equipment and development of functions of government to handle so large a problem would necessarily lead to more or less confusion and lack of efficiency.

In the office, where I have the privilege of working in the Bureau's headquarters of the Seventh District in Cincinnati, where I am chief of the Medical and Surgical Sections of the relief work, the work started with three officers and about a dozen clerks. I cannot tell you offhand how many officers we have now. We have a clerical personnel of 600 developed in a little over two years. The number of cases has increased in like proportion. If any one can explain how any business organization, developing under one responsible head without change of authority from above, could develop so rapidly without making mistakes, and sometimes serious mistakes, I should like to have him point out where it has ever been done. Then the shifting policy of Congress to meet the needs and offset criticism has led to changes in the authority over the work. This has led to more or less confusion that was unavoidable; nevertheless great work has been done and greater work lies in the future to be done. Let us not allow the public and Congress to lose sight of the fact that basically this whole work is a medical problem. We make much of vocational training, and it is highly worth while, but it cannot be done except on the basis of a medical decision. We make much, and properly, of compensating men injured in the service by wounds or by disease, giving them adequate compensation, balancing their loss as nearly as we can, a great function and an important one, but the determination of the extent of their loss, the duration of it, is a medical problem. Of course there is no gainsaying the fact that the treatment is purely a medical problem. We sincerely hope with the aid of medical men outside of the service to impress upon the people and upon the veterans themselves the highly important question of the care of the disabled veterans. We are determining, first of all, when a man makes his claim, the extent and nature of his disability. If a man had his disability when he went into service, and such disability was not noticed at the time of his enlistment, the law holds that the disability was incurred in the service. For instance, a man with a broken femur and shortening of an inch and a half, all of which was overlooked in the haste of his enrollment in the service—that disability is a service disability, because it was not noted at the time of enlistment, and he is entitled to compensation for that disability. It requires good examinations, and that puts us up against the difficulty of how to secure such examinations for the determination of disability and of treatment. When we get a man off the compensable list it is again a medical question, and one of proper and adequate care in the hospitals and out patient department. Let us not forget that we are attempting to rehabilitate these men, to secure for them the maximum benefit of treatment in order to make them self-supporting and unwilling to be dependent one minute more than they have to be.

Leon L. Solomon, Louisville: I desire to address myself to one phase, only, of the question, as presented by Major Board in his splendid presentation of the subject, "The Rehabilitation of the World War Veteran." The government has taken a position, concerning the man, who is found to have syphilis, which I do not believe is justifiable. It has been said, the civilized world is rapidly becoming syphilized. We medical men are willing to accept such statement, representing, as it does, almost, if not entirely, the truth. How does this apply to the War Veteran? If he shows a positive Wasserman or has bilateral discrete glands and otherwise clinically shows signs of syphilis, even though he gives no history of ever having acquired the disease, the Government places him in the same class, as is placed the so-called "vicious" individual, who knowingly has disobeyed orders and acquired the disease, while in service. I believe that something should be done by the medical profession to correct this ruling. Dr. Anderson has said, the profession stands sponsor for the entire public, military as well as civil. We should impress Congress and the public that this, like many other questions, is entirely a medical one for the doctors to decide. Such man may truthfully insist, that, to the best of his knowledge and ability to recall he has never had a primary lesion and has no recollection of any secondaries. He may truthfully declare that he has never fallen from grace; that he has never had illicit intercourse. Except by accident this man cannot possibly have the disease, and yet he is placed in the same catagory with the individual I have just mentioned. The Government employs the word "vicious" in connection with syphilis, howsoever acquired.

It has been my privilege to serve the local Marine Hospital and War Risk Insurance Bureau, assisting Dr. Board in the glorious work, he so splendidly describes in his contribution, this morning. I have seen, for a number of months, sometimes two or three patients each day. They are referred to us for comprehensive examination and diagnosis. It not infrequently happens, that we find these World War Veterans with syphilis, about which they know nothing, yet they are classed as belonging to the Vicious Group. Is it too much to assume, as Dr. Anderson suggests, that, in the rush to get men in the service many were overlooked who had Congenital Syphilis or who had acquired syphilis before entering the service. Something must be done for such men and the impression should be created by the profession, that those who have accidentally acquired syphilis or who had congenital syphilis and who were accepted in the service, deserve the same protection as any other man or woman in the service.

Arthur T. McCormack, Louisville: Dr. Board has so well presented this subject that there is very little left for one to add, and yet I would like to call the attention of the physicians of Kentucky to their tremendously important responsibilities in connection with those who have been called upon to administer this act. It is of the utmost importance in making examinations and in making reports that they should be accurately and carefully made, and that we state in regard to disability only the known and demonstrable facts because when that paper comes before the examiner, it is the only thing he has to determine the remuneration that will be given to that particular individual. In justice both to the individual who has served his country, and who should receive every penny of compensation and every privilege that pertains to those who have been disabled, at the same time it is very important that the profession realize their responsibility in protecting the individual or those individuals that are injured, and this can only be done by a careful and critical examination.

Another thing that impresses me very much and should be brought to the attention of the public with great force and great frequency by every physician is the difference between the adequacy of the care that is offered to the injured soldier and the utter inadequacy of the care offered to the soldier's father or mother, or wife or child, compared with that of the soldier. We propose to establish institutions where soldiers with tuberculosis can be cared for, and where the tuberculous can be educated that this disease may be prevented among their relatives. In the same manner and to the same degree I respectfully insist that the men and women and children enlisted in the great civil army that makes citizens of the United States have a right to the same protection, the same care, the same education and the same training. It is insisted that the neuro-psychiatric patient, who was an ex-soldier, shall be adequately cared for by experts, where there are experts, who shall give their time and attention and devote their learning to the relief of these conditions and to the care of these people when it is necessary for them to remain entrusted to their care.

I want you to insist that every single solitary man and woman in Kentucky, who is sent to our hospitals for the insane, shall be sent with the understanding they are given the same care and the same attention. It would little profit a soldier temporarily to be sent to an institution where his wife or sister might be sent, and know they are less treated while he is being properly treated. Men cannot help being shocked and disturbed by the lack of care they are getting, yet our institutions are doing their best work, and our doctors are working as hard as doctors can work, but there are four men on an average taking care of 1700 patients and no diagnoses are made. I want to say to you, gentlemen, if this particular body by any means could be transported to Lakeland and to one of the other institutions in which patients are incarcerated, you would find it would be an average of two years before they examined you and let you get out, and yet I doubt if there is a single man there who ought to incarcerated. They are so dreadfully undermanned that patients do not receive proper attention. They have to stub their toes or have a belly ache in order to receive medical attention. Diagnoses cannot be made of cases with such a small staff.

We have not brought this matter to the attention of our legislators. They want to do the right thing, and let us get this information before the people and the legislature. Let us insist that our people make such arrangements as will enable these people to get adequate medical care and call on us, and we must respond with properly trained physicians in the remotest districts. It is going to do little good to have elaborate hospitals with staffs such as Dr. Board described at five or six points for women or men who are taken acutely ill, with no near doctor obtainable. Let us insist not only that the usual training facilities shall be increased for doctors and nurses, but the kind and character of citizenship stimulated, then we will get more desirable young men into our hispitals and women into our training schools for nurses.

Milton Board, Louisville (closing): In Pinafore I remember the good old song of the admiral of the King's Navy in which he said,

"Stick to your task and never go to sea,
You will all be admirals of the King's Navy."

However tempted I am to follow in the footsteps of my friend, Dr. McCormack, and discuss the institutions of Kentucky, a subject in which I am vitally concerned, I am reminded the scope of my paper was federal care of the veterans.

Permit me to say one word in closing in that connection particularly to you who may have to do with the examinations or assist in making reports, and that is, that certain salient facts should be covered, or as Dr. McCormack has remarked, when these papers get to Washington they must present, and they do present the only pen picture available to those who must determine the rights of the claimant. That pen picture should show, first, the family history, and that is more particularly with reference to neuropsychiatric disorders which are of the greatest importance. It should show concretely, and yet thoroughly, the personal history. It should give in great detail the military history, and then quite as important is the history after the war, all of which precedes any physical findings that the examiner may make, and I want to insist here that those who may come in contact with the claimant should have these essential facts set forth, in order that the district office, or the Washington office may have the proper pen picture. I thank you for your discussion.

TUBERCULOSIS OF THE SPINE*

By Robert T. Pirtle, Louisville.

Tuberculosis of the spine, or so-called Pott's disease, was first accurately described by Percival Pott in 1779, but not until 1882 was its cause ascertained. When Robert Koch made his discovery of the tubercle bacillus its etiology was definitely determined.

Pott's disease is most common in early childhood, statistical records showing the greatest frequency about the age of five years. While eighty-five per cent of the cases occur in children under ten years, no age is exempt from the disease. Sex is of no importance as an etiological factor, although boys are slightly more often affected than girls. The influence of heridity as a predisposing cause can be only approximately estimated owing to the variation in statistics. Gibney states that seventy-six per cent of the patients in his series had tuberculous parents, while other estimates are as low as ten per cent with a positive family history. A history of one of the eruptive diseases is sometimes obtained immediately preceding the onset of spinal symptoms. In many cases there is evidence of tuberculosis elsewhere.

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I shall not discuss the anatomy of the spinal column, except to say it contains twenty-six bones, all of which are subject to tuberculosis; but the most common site seems to be the dorsal region especially from the eighth to the twelfth. The tubercle bacillus destroys the body of the vertebra which allows it to sink or flatten, thus causing the type of deformity with which we are all familiar.

The first symptoms noted are usually stiffness or spasm of the back muscles. This is nature's way of protecting the diseased or injured vertebrae. The patient does not bend the back in stooping, using the knees instead. If the disease is cervical, it at first resembles a stiff neck. The signs of the least trouble, until the disease is far advanced, are noted in the lumbar region on account of the strong ligaments and side-bracing to the pelvis. Sometimes the first intimation of spinal disease is kyphosis or beginning paralysis. Usually, however, a more or less extensive complex of subjective symptoms will be found to precede these physical signs.

Pain may be either local or referred. Local pain may be elicited by pressure over the spinous process of the diseased vertebra. Referred pain follows the distribution of the sensory nerves and is ordinarily subacute. The areas of referred pain in the various spinal lesions are as follows:

(a) Cervical disease, pain in occiput and arm:

(b) Dorsal disease, sternal and intercostal neuralgia:

(c) Dorsolumbar disease, epigastric and girdle pains—"stomach ache:"

(d) Lumbar disease, pain in hips and legs.

Night cries are not as common as in joint disease and they subside under proper treatment. A peculiar grunting respiration is not unusual. In addition there are noted cough, dyspnea, and later gastric disorders, flatulence, obstinate vomiting and disturbances of the urinary bladder. We do not as a rule see these patients until some definite symptom has developed and attracted the attention of the parents.

The clinical diagnosis as a rule is not difficult. It is in those cases where the diagnosis is made early, before deformity from bone destruction has occurred, that the best results are secured from treatment.

After completing the physical examination a roentgenogram should be made in every instance. This is necessary not only to confirm the clinical diagnosis but to determine the degree and extent of the disease, the presence of ichor pockets, if any exist, to note the progress of healing, and to act as a guide in the event operation is to be undertaken. The Bucky diaphram enables us to secure information concerning tuberculosis of the spine which could not be obtained previously with the roentgen-ray. It also facilitates careful diagnostic study which is very important in this disease.

In carious tuberculosis of the spine the clinical symptoms are usually sufficiently positive to suggest the diagnosis even where the roentgen ray shows no destruction of bone. However, where the roentgenogram is made with the Bucky diaphragm seldom will a case be found which does not show some caries. A spot no larger than the end of a lead pencil can be discovered by this means.

Among the most common complications of this disease are: abscess formation, constituting the so-called cold abscess, secondary infection of the involved area, and rapid destruction of surrounding tissue. Pus is absorbed by the system and amyloid degeneration of liver and kidneys is not uncommon. In untreated cases the spine gradually "buckles" and paralysis ensues. Paraplegia is the most common type and is due to mechanical pinching of the spinal column or edema and pathology of the cord or pressure due to abscess. Tuberculosis of the lungs and of other joints, especially the hip, is also a not infrequent complication. Abscesses may point in the groin or as far downward as the knee, with painful contraction of the leg due to spasm of the psoas muscle. Some times, however, the abscess points over the spine itself. Aspiration under asceptic precautions is the proper method of handling such cases. Often the pus is so thick that it cannot be aspirated, then it is necessary to make a small incision to drain the pus pocket—this must be done under strict aseptic precautions and closed without drainage. These pus pockets become infected at times, then free drainage is necessary .

The three principal methods of treatment are: (a) rest in bed on a Bradford frame, (b) the application of a plaster of paris jacket, (c) either the Hibbs or Albee spinal fixation operation. Hibbs depends upon new bone formation by breaking the spinous processes after denuding them of periosteum. Albee inlays the new bone from the crest of the tibia. Both of these operations shorten the time of treatment with apparatus.

The treatment of tuberculosis of the spine should be classified as to the age of the patient, location of the disease, and severity of the infection. Operations on the spine are especially indicated in adults, and, from the consensus of opinion, rarely ever in children.

The ideal way of treating children under the age of ten years with Pott's disease of any part of the spine is by the use of the Bradford frame. This is made of gas pipe covered with canvas so arranged as to be tightly laced. The frame should be six inches longer and four inches wider than the patient. Cervical and high dorsal Pott's disease can be treated by means of the jury mask with plaster of paris or Minerva jacket. This is applied so that it holds the head steady at all times.

Dorsal and lumbar lesions may also be well managed with plaster of paris jacket. When one has sinuses and excoriation to complicate the treatment, then the Bradford frame is very useful in the treatment of dorsal and lumbar Pott's disease.

Heliotherapy is a great help in treating this form of tuberculosis and the diseased parts should be exposed, when it is possible, to the sun at least one hour each day. When plaster paris jackets are used a fenestrum can be cut over the diseased vertebrae. The Bradford frame is very useful in this treatment as the patient can be turned and the whole back exposed. The sunshine treatment should be lengthened each day until the skin is burned brown.

The jacket may be applied in one or two ways, viz., in the upright position with extension, or in the horizontal position on a special frame. A stockinet is placed over the body from the axillae to below the hips; the body is well padded with silence cloth over all bony prominences; felt pads cut to proper shape are placed smoothly over the kyphos. Plaster of paris bandages are then applied carefully so that no wrinkles will compress and irritate the skin. Four to six inch bandages are the best as they can be applied smoothest. The jacket is "trimmed out" under the arms and over the hips, and a hole is made over the abdomen to facilitate breathing and permit distension of the stomach after eating. The inner stockinet may be changed when required by attaching another and pulling it underneath the jacket. This increases the comfort of the patient and is necessary for hygienic reasons. The plaster jacket properly cared for will last from three to five months, thus necessitating the making of two to four new jackets each year.

Plaster of paris is used to correct by hyperextension, so far as may be possible, the deformity which has already occurred. The Bradford frame may also be bent backward as required and thus produce hyperextension. Treatment by means of plaster jacket must be extended over a long period of time, that is until the process is arrested and the diseased bones are well united with fibrous tissue or new growth and are able to support the body weight. After that a properly fitting spinal brace must be worn during the day for several years.

After the acute symptoms have subsided, if the patient is under proper control, a spinal brace known as the "crutch pattern" may be used to advantage. This apparatus can only be successfully handled by those who are competent and experienced; its application cannot safely be entrusted to unreliable persons. In large hospitals where these patients are kept for several years, this type of apparatus has its greatest field of usefulness.

These patients should be given a diet consisting of highly nutritious food, such as eggs, beefsteak, milk, etc. They should be kept in the open air as much as possible during suitable weather, and sleep on a porch where practicable. Of course in the majority of instances there is a primary infection of the lungs.

The prognosis is favorable in most instances where the diagnosis is made early and proper treatment promptly applied. The only chance for regeneration of the spine is by absolute fixation to allow the formation of new tissue to replace that destroyed by the tubercle bacillus. This new tissue is always more or less fibrous in character.

The best that the patient may hope for is a partially stiff spine with some deformity, especially in high dorsal and cervical lesions. In the lower dorsal and lumbar regions we can promise the patient less deformity with greater freedom of motion.

CONCLUSIONS

Early diagnosis with fixation treatment offers the best results:

Fresh air, proper food and sunshine, hygienic surroundings and rest, are important:

Hospital treatment is advisable where it is possible, for the proper control of the patient:

The length of the treatment is from three to five years, with Bradford frame, plaster of paris jacket, posterior spinal brace, and operation in properly selected cases.

DISCUSSION

C. C. Garr, Lexington: I enjoyed the paper of Dr. Pirtle very much. He has covered the subject of tuberculosis of the spine very thoroughly, and there is very little I can add to what he has already brought out. I only wish to emphasize some of the points that he has made clear. I have learned something from Dr. Pirtle's paper.

In speaking of pain in Pott's disease, he said we do not get pain as early when the lumbar spine is involved. It has been my experience that we get pain in the lumbar spine or lower dorsal more frequently than in other parts of the spinal column, for the reason that we have the greatest motion in the lumbar spine, where we get the greatest flexibility, and hence we get more pain earlier. It is just as true in tuberculosis of the spine or Pott's disease as it is in malignancy, as it is in acute appendicitis, in syphilis, or in any other disease that the doctors who treat these cases want to get them early. The diagnosis is very easy when we get a patient with a pronounced kyphosis, with a pronounced cold abscess, but it is not an easy matter to make a diagnosis in the beginning of the disease. I have seen several cases that could have been diagnosed earlier if ordinary care had been used, and yet these cases went for a year or eighteen months before they sought relief. This is particularly true in children, where a little tot two or three or four years of age cannot talk, cannot explain to you what the trouble is. In such cases we are too prone to treat these children on plans of inanition and try to do for them by diet and medicine what support would accomplish.

The history of a case of Pott's disease of the spine is very important. In most cases we can find where there has been a history of tuberculosis in the patient's home or he has been associated with tuberculous people in his home. As an example of that, one of my associates (Dr. Bullock) operated on a patient seven or eight months ago for tuberculous adenitis of the neck, and a few days ago the patient returned with pain and destruction in her lumbar spine.

The treatment has been very well covered by Dr. Pirtle. It is the standard treatment used the world over—treatment by fixation. I believe in fixation with or without an operation. I believe where we use the Albe inlay bone graft or use the Hibbs operation of turning over the spinous processes, it is not sufficient, and I would not be willing to trust my patient to that operation with that fixation alone, but I would want to apply support on the outside with plaster of paris. The principal thing about treatment, and the hardest thing about treatment, in Pott's disease of the spine is not what treatment to apply, not what fixation to recommend, but when to stop treatment. That is the question that comes up in every case. When these patients have done well, when they are able to walk, when they gain in weight, and are satisfied with the cast and posterior spinal brace, when to leave that off is an important question. I have a sort of morbid fear that these patients will come back six months later and say to me, "Doctor, the pain has returned."

I have not had any experience with the Hibbs operation, but as to the Albee bone graft, I agree with Dr. Pirtle that it should not be used in children. It is an operation for adults, and in children the best method of treatment is the use of the Bradford frame in which children can be taken off of it daily and given a bath, and be exposed to the sunlight and be kept off their feet. When the children are a little older, I recommend a plaster of paris jacket, using all the other means in treating tuberculosis or Pott's disease of the spine as we would use in tuberculosis of the lung—rest, good food, fresh air and constant observation of the patient.

P. H. Stewart, Paducah: I do not think there is anyone present who cannot say he did not enjoy the paper of Dr. Pirtle. So far as covering the subject is concerned, from my point of view he has absolutely and thoroughly done so. About the only points I can see to discuss are those brought out by the essayist, and I believe one of the most important of these points in the paper relates to the diagnosis. It is an easy matter to diagnose tuberculosis of the spine in the advanced form, but I do not believe it is an easy matter to diagnose it when the diagnosis should really be made, and it can only possibly be done by close and repeated examinations and thoroughly exhausting the resources of the individual physician or surgeon. The success of treatment depends more upon the time of diagnosis than any other one thing. If the diagnosis is made early, your treatment is most apt to be successful.

The treatment for the sake of argument may be divided into the mechanical and the surgical. The mechanical treatment, as outlined by Dr. Pirtle, covers every case in every stage, and it depends upon the stage the patient is in at the time he comes for relief.

Relative to the surgical treatment, there are two forms that we know are in use today, namely, the Albee bone graft and the Hibbs operation. I have had a limited experience with both, and especially in children where surgical treatment is indicated, and resorted to, at least in my hands the Hibbs treatment has yielded most satisfactory results. If it is equal to the Albee treatment, personally I would adopt it because the originator of it is a Kentuckian, not from Lexington, but from the wild and wooly western section of the state, and there is no question in my mind but you can get just as good results with less effort by the Hibbs treatment, especially in children, as you can by the Albee treatment.

There is one complication that sometimes will bother the surgeon and the doctor in the differential diagnosis. Remembering syphilis, appendicitis, and all other conditions, there is sometimes a fracture of a vertebra received in some traumatism six or eight months previous to the time the case comes to you for diagnosis, and I have had the privilege of being mixed up with one of these cases in which the patient received an injury six or eight months previously, and the x-ray showed necrosis of the vertebra the result of a fracture at the time of the injury.

I certainly appreciate the privilege of discussing this paper and wish to say again that the author has covered the field thoroughly.

O. R. Miller, Louisville: I had the privilege of reading Dr. Pirtle's paper, and although I was late in getting here I know what it contains, and I think, as has been said before, he certainly has covered the subject very thoroughly from every point of view. All that remains to be done is to merely emphasize some of the points he has already made.

At one time I presented a little paper on tuberculosis of the hip at a medical meeting, and in the discussion one of the men said that this was a very old subject, and was one with which we were coming in contact less and less frequently, for the reason the diagnosis was easily made, and the treatment consisted of fixation. I think in those few words the sum and substance of the whole story was presented to us. I think that applies to Pott's disease just as well. However, I do not believe that we are finding less and less of tuberculosis of the spine and joints in the same proportion as some of the diseases, such as smallpox, where we have some way of dealing with them peremptorily.

The diagnosis is not difficult to make, especially, as Dr. Pirtle has shown by the use of the Bucky diaphragm and x-ray even a small area the size of the end of a lead pencil may be discovered, and when these cases are taken early and proper treatment instituted, certainly very good results may be obtained.

I have had the privilege of observing some of Dr. Pirtle's work in the last few months. One case in particular I recall right now led me to think how nice it was, how much pleasure it must have been to Dr. Pirtle to operate on a little girl who had unquestionably Pott's disease, one of the vertebrae having been almost entirely destroyed, and yet she had not any deformity.

How much better it is if a patient can be taken early in that way and be saved the embarrassment and handicap in her career after a hunch back is once discovered.

The pathology and story of how the tubercle bacillus gets its foothold in the bones are interesting, it seems to me, but it cannot be gone into deeply any more than to say what Dr. Pirtle has said, there is usually some other point of infection first. As a usual thing, Pott's disease or hip disease is a secondary infection. There is usually some involvement of the lungs or the bronchial glands or the mesenteric glands. The tubercle bacilli get into the blood stream or into the lymph stream, go out and lodge in some of the terminal capillaries and there set up infection. The first abscess, we are told, is produced by a single tubercle bacillus, which by its poisonous excretion breaks down the surrounding bony tissue and surrounds itself by necrotic material upon which it feeds. Another one reaching him does the same thing, and these coalesce to form larger abscesses. It seems logical, of course, that fixation would prevent any friction between these joints, and in that way prevent a breaking down of the walls between the two abscesses. It is a very important thing to treat cold abscesses in such a way as to prevent any mixed infection. I believe some of the authorities have said that the cases which have mixed infection never get well, and it seems that must be true. But all of us have seen amyloid degeneration coming from these cases in which the abscesses have become infected with some other organism.

I feel highly honored in having had the privilege of discussing Dr. Pirtle's paper, and I think he is to be congratulated on its splendid presentation.

Arthur T. McCormack, Louisville: I want to emphasize as a part of this very important contribution the importance of the prevention of tuberculosis, the importance of testing cattle by tuberculin, and the importance of educating families so that sputum is not carelessly distributed about the premises. I should like to emphasize also the importance of isolation and segregation of consumptives during the active stage until they have been so educated that they will not be menaces to the healthy people with whom they come in contact, especially in children; also the importance of removing babies immediately from contact with tuberculous mothers, and feeding them on milk and milk products, and the importance during the early stages of child life particularly of that broad general diet, always including milk and milk products, and the leafy vegetables and fruits with fresh meat. The importance of these things should be emphasized by us as physicians in every home, regardless of the other conditions they have, so that people themselves may become so educated that there will be fewer of these serious cases to treat, and it is gratifying to know when they do occur they can be treated as effectively and as definitely as is now being done.

W. W. Anderson, Newport: Tuberculosis of the spine, as the essayist has well stated, is not ordinarily a single or primary process. However, when it becomes a destructive process of the spinal column it is a surgical problem, and when we turn a case over to the surgeon we should beware that he does not fall into the common error of surgeons who see nothing but the surgical aspect. . It is part of a general tuberculous process, and there may be active areas in other regions than the spine that need attention. The best surgery sometimes fails because there is not sufficient attention paid to the other areas involved.

As to the importance of early diagnosis, one of the speakers has mentioned rigidity. We must teach these fingers of ours to recognize rigidity. Pottenger has called the attention of the profession anew to the fact that one of the earliest and most significant symptoms of tuberculosis of the lungs is rigidity of the overlying chest muscles. When Pottenger made that statement, many of us laughed at it and said it was impossible to detect such rigidity. It is not impossible at all, and if we fail to educate our fingers to find rigidity over the lungs, over the spine or any other area where there is active inflammation, I believe we are missing our chance for an early diagnosis.

Among the other symptoms besides rigidity, which arrive early before the disease declares itself openly, are a failure of health without known cause, a little depression, a little indisposition to exercise, a loss of interest in play, loss of appetite, later a little fever. Those obscure symptoms call for the best diagnostic ability there is in us to determine the underlying cause, and only by getting at these symptoms and studying them assidiously in the early stages will we ever prevent the disastrous wrecks we see going around the world as cripples the rest of their days.

William B. Owen, Louisville: I enjoyed the excellent paper of Dr. Pirtle and the discussion. Eighty per cent of these cases of tuberculosis of the spine develop in patients under ten years of age. If that is the case it is very important for them to have frequent and careful examinations and general constitutional treatment early to prevent the occurrence of bone tuberculosis. We all practically agree that bone tuberculosis is in almost every case secondary. Very seldom has it been proven to be a primary lesion.

As to the use of the x-ray, we use the x-ray very extensively. When the x-ray findings do not show that we have tuberculous infection of the spine or of the bone in any place, and the clinical symptoms are those of weakness, muscle spasm, and stiffness and sometimes deformity, support, complete rest and general constitutional treatment should be instituted at once. The case should be carefully watched. Clinical and x-ray examination should be made frequently until the diagnosis is definitely determined when the cancelous portion of the bone has been invaded by T B localized decrease in density and atrophy is the characteristic x-ray findings.

Various types of treatment have been considered, and they should be adopted according to the ability of the man to handle them and his familiarity with the various methods of treatment. In other words, I do not believe it is a proper thing, if a man knows how to treat cases by fixation with plaster of paris jackets, for him to attempt to do the operation of either Hibbs or Albee. Operative and radical procedures are becoming more limited in their scope. When they first became prominent, it was thought by some men that every case should be operated on. A little bit later the pendulum swung the other way and a certain group of men thought none of them should be operated on. Now, we have reached a more sensible stage in which cases should be carefully selected, and very few young children should be treated by radical methods. More benefit has been derived from the operation on adults than on children. The treatment resolves itself into two points: fixation until the acute symptoms have subsided, hoping to have bony fusion, and general constitutional treatment, which consists of diet, proper sanitary surroundings, rest and lastly and probably the most important, sunshine.

Robert T. Pirtle, Louisville (closing): I want to thank the members for the liberal discussion they have given my paper, which to my mind covered a very large subject and a lot of ground. As Dr. Anderson said, it is one of the most important subjects we have to deal with.

There is a plaster of paris bed that I did not mention that is used. You make a cradle out of plaster of paris and hinge it in the middle and use it in preference to the Bradford frame for young patients. An x-ray picture is best made on a Bucky diaphragm to tell when to discontinue treatment. You can see how the destroyed tissues are filled in, and how much new bone formation and fibrous tissue there is. The apparatus is first removed. It should be taken off at night and the patient allowed to sleep without it. At the end of six months or a year, if the conditions are favorable, from a close observation and x-ray pictures, you can withdraw the treatment. However, in many of these cases, in spite of fresh air, good food, and so on, the disease is liable to go on to abscess formation. They will have psoas abscesses and psoas contraction in spite of what we do.

I agree with Dr. Stewart that the Hibbs operation is the best in children. It gives fixation, more bone infiltration, and serves the purpose better than the Albee bone inlay. The latter does not give the bone proliferation you want in children. In grown ups it acts differently.

Softening of the spine following an injury, is a condition that has always been described to me as Kummel's spine. Softening of the vertebrae after an injury is not a tuberculous process but the absorption of new bone by the pressure of the spine on the new bone causing the absorption.

I saw a case yesterday that Dr. Owen has had under treatment a number of years. It has been eighteen years since the girl had the first abscess. She had abscesses in the gluteal region involving both groins. If water was injected in the left side it would come out the right side. She is now in good health, but has a typical hump in the lower lumbar region. She walks without apparatus, and all the sinuses are entirely healed up. It shows that in spite of the mixed infection, due to the resistance of the body, these cases may go on and heal up. In many instances they go on to amyloid degeneration and die.

THE PROGRESS OF PREVENTIVE MEDICINE.*

By Will J. Shelton, Mayfield.

The science of preventive medicine is concerned in the welfare of each individual and the welfare of the community. In its relation to the individual it is interested in the normal development of the body and mind, the efficiency of the individual mentally and physically, the conservation of health by fortifying against disease and the prolongation of life. In its relation to the community, it pertains to the prevention of disease and the removal of conditions favorable for their development.

Up to the middle of the last century very little was known of preventive medicine; the only interest that a physician had in a patient was a personal one. Little was known about the cause of disease, the ways of transmitting it or the means of preventing it. If a physician were called to see a patient with a contagious disease he treated the patient until he recovered or died. There was no way of knowing how the patient had contracted the disease or how any other individual might contract the disease from him. The physician had no responsibility to those associated with the patient or the community, since there was nothing that he could do that would effect those exposed either favorably or unfavorably. There was little the doctor could do to prevent the spreading of infectious diseases. A different situation exists now. Modern medicine has a social value as great as its individual value. The development of the last fifty years has increased our knowledge of diseases and their prevention more than all the preceding centuries. The development of preventive medicine in recent years is known by all the profession. It has brought about an entirely different conception of the relation of disease to society, of the duty of the community to the individual and the individual to the community in the prevention and control of disease.

Thirty years ago the prevailing idea was that disease breeds in filth, instead of filth being its medium of transportation. We know now that infectious diseases do not breed in polluted substances, we also know that they do breed in man and animals. The infectious diseases are transmissible; they spread from one individual to another, they do not originate from unsanitary conditions. This fact is established by observing that many diseases are prevented by vaccination. In 1898 the United States health officials were so imbued with the idea that yellow fever was a direct result of bad sanitation that they had Colonel Waring sent to Havana to clean the city and exterminate yellow fever, which had been there for many years. His work was so well done that Havana was called the cleanest city in the world. The next year there was the severest outbreak of the disease in the history of the city. So yellow fever raged throughout the South until Reid and Carroll, determined to discover its origin went into the most frightful epidemic of this disease and stayed until they discovered its cause and mode of transmission. Since then the fear of yellow fever has almost vanished.

Laboratory aid demonstrates that typhoid fever does not breed in filth, but is an infectious disease, which is spread by means of filth. What is true of typhoid fever is true of many other infectious diseases.

Isolation is one of the great factors in the prevention of contagious diseases and should be resorted to when possible. Through this method diseases have been checked and epidemics have been prevented.

Recent years have demonstrated, by their laboratory research work the value of biological products as preventive as well as curative agencies. The progress of laboratory work has made possible the prevention and control of many of the epidemics which were once uncontrollable.

When exposure to a certain kind of infection is known the strengthening of the body cells against it is important; for this purpose the prophylactic treatment is used. The serums and vaccines are used for the purpose of increasing the resistive power inherent in the body enabling it to overcome the infection. In passive immunity where serums are used, we supply, artificially, the protective material ready made from animals. In this form of treatment the action is quicker, but not so lasting. The antitoxine is supplied directly to the system and immediately antagonizes the toxines—as in tetanus and diphtheria. In active immunity, where vaccines are used, the individual manufactures his own protective material. The cells of the patient are stimulated to produce their own antitoxin or antibodies.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

The results of preventive medicine are and will always be more beneficial to the community than the results obtained from the treatment of those who are sick. Three hundred patients die annually in Kentucky of diphtheria and approximately four thousand children are sick each year of this disease. This could all be prevented by the proper use of toxine-antitoxine. The great benefit to be derived from active immunization, by injection of a properly balanced toxine antitoxine, has been sufficiently demonstrated and the public is becoming educated to the efficiency and need of preventing sickness by this method.

We are able to determine those individuals who are susceptible to diphtheria and render them immune, yet the annual morbidity in the United States is nearly "two hundred and fifty thousand." We do not possess such satisfactory means for the prevention and curing of any other infection, yet the average mortality amounts to approximately "twenty-five thousand deaths each year." We have sufficient knowledge and means to eradicate diphtheria but we are nowhere near accomplishing this result. By the injection of three doses of the toxine-antitoxine mixture, 97% of the susceptible individuals may be rendered immune, and it is said immunity will last three years.

There are, approximately, "three million" people sick all the time in this country; a large part of this sickness could be prevented.

The use of typhoid vaccine is one of the most striking examples of preventive medicine. In previous wars of the last half century the typhoid mortality has varied from "11 to 21 per one thousand troops," from "April 1917, to November, 1919, four million Americans served in the army. There were one thousand and fifty-six cases of typhoid, with one hundred and fifty-six deaths—one typhoid death for each twenty-five thousand, six hundred and forty-one American soldiers." These are only a few examples of what can be done in preventing infectious diseases by present methods.

Preventive and curative medicine should always be combined and practiced alike by all physicians. Many physicians believe that a change in established principles is indicated and they must devote their time to the cause and prevention of disease as the primary object of medicine.

The medical outlook appears to be based on public welfare and the duty of the physician is to prevent as well as cure disease in those who are under his care. The old Oriental custom of paying a physician to keep the peope well rather than to cure illness seems to be coming into use again.

When pestilence invades the country, the first appeal of the people is to the Public Health Service. When an army is to be mobilized, the medical corps must see that it is an efficient army. Lloyd George recently said, "That the public health must become the first interest of the land." Forty per cent of Americans from 18 to 45 years old were not able to enter the war. England had nearly sixty per cent. These large numbers could have been prevented. "Eighty per cent of all criminals have syphilis; fifty per cent of the insane and ninety-two per cent of those interned in the war."

No one now believes that medical practice is limited to prescribing. "The attitude of the physician toward disease is to prevent it if possible." Failing to do this he aids in the contest in the way he thinks best by the use of radical or simple measures. The surgeon prevents cancer by removing the growth before it becomes a cancer. If the theory as to the cause of cancer is true, it can be as easily prevented as can diphtheria or typhoid.

Pediatrics is perhaps in the lead in the idea of keeping the patient well. The specialist is devoting more time to etiology and less time to pathology. He realizes that it is necessary to understand the cause in order to prevent the disease; thus he is constantly applying himself and by keeping children well he has added ten years to the span of human life.

By improving the surroundings of the individual and limiting the likelihood of infectious diseases, it is reasonable that the average life will still increase.

In no occupation, or profession, is the change from established custom becoming more apparent than among physicians. There are indications that new opportunities are bringing into play new responsibilities and physicians should necessarily meet these opportunities and responsibilities in a way to make them serve the best interests of all. Medical practice of the past has been largely that of individual effort, without giving thought to the needs of the community. The result is, there are societies that feel it their duty to impose restrictions on the action of the medical profession and who think that by doing so they are rendering a great service to the community. In recent years many legislative sessions in different States have been approached by these organizations, in order to obtain the passage of some measure that is undesirable to the medical profession. They work on the ignorance of the people by insisting that the profession is not sincere and has selfish and impure motives, attempting by this method to restrict the freedom of action of physicians. These same organizations are partly responsible for "$250,000,000" spent by the people of this country for patent medicine in 1918. No doctor wants State regulations in regard to the practice of medicine, any unnecessary interference with the relations between the physician and his patient would be injurious to both. If there is to be State medicine it should be brought about by the medical profession, educating the people as they should be, and few outside the profession are able to do this. The physician is told to execute the work, he is not asked to direct it, but sooner or later he will be called on to formulate his plans in regard to the needs of the community, direct the work and execute it. Then it will be as it should be. The object is to reduce sickness and mortality by removing the cause and to strengthen the resistance of the people by increasing their mental and bodily vigor.

The medical profession must pervade the country with the ideals of its faith. The enthusiasm of the world has been awakened and it looks for protection and relief from the profession which gives security against disease and provides its economic chance. Physicians will never forsake or escape the task of proclaiming the way of relief to the millions who are constantly sick.

Disease is the result of ignorance and indolence. So long as there are "seventeen million illiterate people" in the United States, and so long as it remains a Nation of sixth grade scholars, and so long as it spends five dollars for amusement where it spends one for education and religion, it will be difficult to control infectious diseases, with all the effort we may put forth. Where ignorance is greatest disease is most prevalent and fatal. The more enlightened, the stronger we are physically, and the stronger we are physically the better we are mentally. Disease always brings physical weakness and mental decay. The best doctor is the one who prevents disease. The best community is the one which prevents disease. The best States and the best Nations are those which prevent disease and make their people strong.

If the members of the medical profession will cooperate in their work there is little danger of state medicine, and they can do this without interfering with each other's work and unless they do, there is a possibility of political control, or state medicine. The surgeon, the specialist, the practitioner and the laboratory worker should unite their forces and work together for the benefit of each other and for the good of the community. The intimate relation of the private physicians of the state to the Public Health Service, which is made possible by the State Board of Health, is only an indication of what can be done by cooperation. The recent advance of medicine has been so rapid that no one man can understand more than a small part of it, so each physician has become more dependent upon the skill and ability of other physicians than ever before. By close cooperation, research work will be more efficient in the future. It has enabled us to control diphtheria, yellow fever, malaria, smallpox, typhoid fever and tetanus, to some extent tuberculosis, and many other infections. With an educated public working with a cooperative profession, the promise of the future is infinitely brighter.

The physicians alone are responsible for the false valuation of their service, whether it is to prevent or cure disease. The value is too often measured by the time used in rendering it. A call to correct some slight indiscretion should not be considered as valuable as one at which skillful diagnosis and treatment prevent death, or where prompt action prevents an epidemic. The knowledge that enables the practitioner to successfully treat a patient through a severe attack of sickness or prevent severe sickness should be compensated just as that of asurgeon for doing a hysterectomy.

There are many other ways in which preventative medicine has invaded the field of curative medicine; perhaps the most noticeable is the plan for the control of venereal diseases, that is so well known.

Instead of lessening the work of physicians by preventing sickness you will increase the interest in the community and the home until the call for his services will be greater than ever before—for the purpose of keeping his people well, relieving them of untold suffering and financial burdens.

Great things have been accomplished, but greater remain to be accomplished. If the records of the past are an inspiration to the future, if the work that has been done is a guide to what may be done, the time will come when all infections and contagious diseases will be controlled.

The profession has discarded superstition for scientific progress, its faith in the high principles of justice has underlain all its efforts at all times. It is the guardian of the health of the people, dedicated to the relief of their sufferings and devoted to the promotion of their happiness.

DISCUSSION:

Arthur T. McCormack, Louisville: I have heard very few contributions before this Association that have been more important or more illuminating than this splendid presentation of the subject of preventative medicine by Dr. Shelton. He has concentrated into a single paper a large part of the problem that confronts the profession and the people of this country at this time.

At the recent meeting of the American Medical Association in Boston a large part of the time of the House of Delegates was given to a discussion of state medicine, and to those of us who believe in the ideals, who believe in the basic principles enunciated by Dr. Shelton here, and I am happy to say that includes in its number practically every physician practicing in this state, would have listened with alarm to a debate led by representatives of the great states of New York and Massachusetts, who were insisting that preventative medicine can only be applied by the family physician when called into the case, and then only applied when called for that distinct purpose, which means we would postpone the increased longevity to which Dr. Shelton referred by another hundred years.

We are not going to educate the people so that they will send for us to do preventive medicine until some preventive medicine has been done on a large scale in the various communities, so that these communities can be educated as to their needs.

In Panama, as I have said before, I had the privilege of seeing preventive medicine carried to its farthest extreme in the world today. It has been demonstrated that is requires more and better remunerated physicians than we have ever had in any part of Kentucky, where we are still treating diseases that ought not to occur at all, where we are wasting our time treating typhoid fever and diphtheria and infectious diseases that ought to be entirely prevented, and can be prevented in civilized and educated communities. It cannot be done by the individual. It is not an individual problem, and we recognize it as such. The birth of a baby, the treatment of fracture, the treatment of any definite illness, is an individual problem, and will always remain so. The prevention of disease for the entire community will always be a community problem, and must always remain so. As a profession, let us seriously think of this fact, that 28 per cent of the boys examined in the draft were defective; at least 70 per cent of that number had defects, diseases or other conditions that made them defective that could have been remedied had they been properly cared for at the right time. It is fair to assume that the same proportion of the population, an increasing proportion of the population at the older ages have some defects and are similarly defective and disabled from performing the duties of civil life. We must, brethern of my profession, accept the responsibility for that condition and as an organization, we must remedy it, and it can only be done by assuming responsibility in our various county societies by the establishment of such clinics and such organizations as will reach out and get these people.

In Kentucky half the people in the state never paid a dollar for any purpose on earth, although they were brought into the world through the care of physicians who have attended them in their illnesses and have never contributed one penny toward the support of our profession. This is due in the majority of instances to poverty caused by conditions of ill health that are preventable and remediable, and in those places where poverty is not known to exist, where the disease ratio is much less than ours, diseases are being prevented constantly. They have practically no free list in their practices and do not have to have, but in Kentucky, where we have the purest blooded and sweetest blooded people in our whole Union, as a profession let us realize and assume the responsibility of the cases coming to us and exercise a privilege of relieving conditions that oppress our people through ignorance and lack of knowledge. As long as Kentucky ranks the 46th in the educational ratio amongst the states, so long must it rank large in sickness and deaths from preventable diseases. We must improve our educational system. We have got to build up the knowledge of the people, so that they will appreciate the kind of service we render them and demand from us the best we have got in us. Let us go before our people full panoplied in our warfare against disease, ready to lead and ready to educate them so as to be free from preventable diseases and devote our time and energies to relieving them of those conditions which they cannot prevent, and then we will have enough to do; we will establish a higher order of things that will appeal to all of us. It is important for us as a homogeneous profession composed of 100 per cent Americans to stand by the reputation and the traditions of our profession, and under the leadership of the profession of America and of the world proclaim to the people that we propose to fight disease as an organization, mobilizing all the intelligence amongst our people in making them the healthiest and best cared for population that is ministered to by any profession in the world. (Applause.)

J. A. Stucky, Lexington: The essayist and Dr. McCormack have said with emphasis something about poverty and ill health of our people, The two are intimately related, and if you knew that great part of eastern Kentucky to which Dr. McCormack has referred where there exists the real Anglo-Saxon blood (what little is left)—if you knew them as I know them and had seen them as I have seen them, I believe your pride, your anxiety and your determination would be intensified. Gentlemen, these are our people, our fellow citizens, and only a few years ago not one in ten of the adult population knew their alphabet. There is an appalling lack of educational advantages, and the peaple are poverty-stricken in a way. We have no schools there as we should have, and many of these counties have not even an almshouse for their people. Those people are diseased and short lived, many of them, because we have not done our duty. I am going to urge that we as a state medical society now and here determine that we get rid of some of our evasiveness and reticence so far as the general public is concerned and do our full duty as doctors. Let the public know what exists, what we need to get rid of that which exists, and we will soon bring Kentucky from the bottom of the list in ignorance, and place it where it should be from a sanitary and educational standpoint.

J. Rowan Morrison, Louisville: This paper has impressed me very much, and the subject is a very pertinent one at this time. I believe that doctors are taking a great deal of interest in this subject, and I believe the women are taking a great interest in it, and it appears to me the thing we want to get straight in the peoples' heads from the eyebrows up is the importance of the subject under discussion.

One way to do this would be to influence school teachers and people of that sort not only not to proclaim the advantages of being well from the standpoint of a doctor and preventative medicine, but to educate them as to what to eat, and I am a great believer in this, that if you eat well, if you sleep well, and keep your resistance up, you will probably be able to withstand the peck of dirt every one has to eat very much better than if you did not do that. In going through the country at large I find people do not eat right and do not have their rooms ventilated properly. To get this thing thoroughly established, we should strive to get the people to think right, but so many of them do not think right. I believe if people would think right they would not be putting patent medicines down their stomachs. If we could preach through ministers of the gospel and through our churches the gospel of cleanliness and right thinking, we could accomplish a great deal of good. In my estimation, one of the principal troubles we have is improper thinking. Furthermore, I believe all state health departments should be as uniform as possible, although we know that one state board cannot get as much money as the other. When we know we have a good thing in the form of serum or vaccine, the doctors in the community where people live should be influenced to try it. It is the same with the anti-toxin treatment and immunization and the Schick test to prevent diphtheria. If we can get the people to think straight and eat right and be more normal in regard to their beings, we will accomplish what we desire more quickly.

Health departments are making a strenuous effort to educate these people in these matters, but the question is whether the people are being touched by these things. In this respect I am reminded of the lady who was a Christian Scientist. In going through a field her little girl saw a goat and said, ''Mother, I am afraid of that goat.'' Her mother said, ''The goat cannot hurt you.'' The little girl replied, ''But does the goat know it.'' (Laughter.) Do the people really appreciate what we physicians are doing? I believe every measure that can be used along the ordinary lines of life to make them appreciate what this means ought to be used.

O. O. Miller, Louisville: One of the most important things in preventive medicine is to stress before this convention the necessity of reporting reportable diseases. You would be surprised to know how few cases of tuberculosis are reported in Louisville, and I presume this is more or less general for Kentucky.

It has been estimated that for every death from tuberculosis, we have nine active cases and twelve inactive cases. Last year the number of cases of tuberculosis reported was barely equal to the total death rate from tuberculosis. In 1918 there were 746 cases reported, as against 456 deaths; and in 1919 there were 383 as against 391 deaths.

Before we can put on a definite and successful program in tuberculosis, every physician must realize the importance of reporting these cases. If we are to control tuberculosis, we must know where it is located. Furthermore, when we speak of educating the laity, it is quite as necessary to consider educating the physician in certain preventive measures. In a number of cities a tuberculosis campaign has been inaugurated, and a corps of competent tuberculosis physicians and nurses have been called upon to render service.

However, the trouble is, physicians do not call upon the services of these nurses frequently enough. They do not request that sputum napkins and sputum cups be sent to their patients; this is done without any charge to the physician or patient. Nurses are only too willing to cooperate with the physician, and see that his orders are carried out in the care of his patient, and in the prevention of infection of other members of the household.

I would therefore make a plea, before this Association, for the faithful reporting of all cases of tuberculosis. Let us have as a goal, five cases of tuberculosis reported for every death. The death rate from tuberculosis is declining. In the registration area of the United States in 1904 it was 200 per 100,000; today it is 125 per 100,000.

D. M. Griffith, Owensboro: I want to emphasize one point Dr. McCormack made to the effect that the treatment of disease is an individual thing, and the prevention of disease is a community one. In my country diphtheria has prevailed continuously all through my professional lifetime for twenty-five years. I have assisted with all my power physicians in the community in an attempt to eradicate it. We have not accomplished one iota from a preventive standpoint, although we have assisted in the treatment of those affected. We have begged and pleaded with these people to have the Schick test and toxin-antitoxin and occasionally we prevailed on some individual to permit it, but the number of cases at that time were so few that it amounted to nothing.

Some months ago a priest in that community became desperately ill: he had one of the most virulent infections I have seen for years. We thought this might be an opportune time to influence the people. An appeal was made to Sisters to have Schick test made in school, which was done by all time health officer. Many of the people of that section were given toxin-antitoxin, and I am hopeful that the future will protect those people against the recurrence of the malady. It illustrates what organization can do and what an individual alone cannot do. In organization we can influence people to the point of using preventive measures, and we can accomplish what a county health officer could not do alone. When we use the influence of organization we reach the people.

I want to further emphasize this fact, that an all time health officer is not antagonistic to the profession. He aids the profession because what he does educates the people of that community and when the people of the community are educated health officers will not have to function in that part of the country in the future. People are being educated. I believe it is the duty of every doctor in Kentucky to assist the county health officer as much as he can because in so doing we will educate the people at large.

W. J. Shelton, Mayfield (closing): I think the doctors are right in emphasizing the point that if we would achieve success in preventing communicable diseases as we would like to do, it will be through an organized profession working with an educated people. If a great many people refuse to have antitoxin used, it shows they are ignorant of what the result is going to be. The fact that a great many people refuse to be inoculated with typhoid vaccine shows that they do not know what the result will be. The education of the people depends upon the profession. If one-half of the profession make every effort to prevent communicable diseases, and the other half does not cooperate with them, we cannot expect to accomplish very much, but the fact is if you administer typhoid vaccine you can prevent typhoid fever. This of itself is sufficient evidence, but the attention of the people should be called to it and we should convince them that we can prevent typhoid fever. The same things holds true with reference to diphtheria and many other infectious diseases, and if the profession would be united, if they will all get together and concentrate their efforts and make the people know that these things can be prevented, I do not see any reason why all infectious diseases cannot be controlled. If you stop diphtheria in one family where the members have been exposed to it, why not stop it in the entire community? If you can stop it in the entire community, why can you not eradicate it? The same holds true with reference to typhoid fever and other infections. It depends upon an organized profession working with an educated people.

GUNSHOT WOUND OF ABDOMEN FOLLOWED BY SUBPHRENIC ABSCESS: CONTINUED REPORT.*

By Charles Farmer, Louisville.

The object of this short report is to make a correction. Early in the summer of 1921, I read before this society a paper on gunshot wounds of the abdomen, reporting seven cases in detail. My paper was published in the September, 1921, issue of the Kentucky Medical Journal.

The last case reported (Case No. 7) had been recently observed, the following being a brief abstract of the history: E. M., female, colored, aged forty-three, admitted to city hospital 10:10 p. m., March 29, 1921. Patient had been shot in abdomen; bullet entered one inch below ensiform appendix and two inches to left of median line. No wound of exit. Eight days later bullet removed from back two and a half inches above iliac crest and two inches to left of median line; slight suppuration about it. For supper patient had eaten cabbage, Irish and sweet potatoes, corn bread and buttermilk; later she ate two apples. She was wounded at 9: P. M. Shortly after admission she vomited cabbage and apples; some blood in vomitus. Pulse 92; temperature 96° F.

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*Read before the Louisville Medico-Chirurgical Society.

Operation about midnight day of admission; abdomen opened in midline from ensiform appendix to umbilicus; cavity filled with blood; wound on anterior surface of stomach found; this was very high and sutured with difficulty by pulling stomach downward. Meso-colon opened and search made for wound on posterior wall, but it was so high could not be reached; no bleeding or extravasation in lesser peritoneal cavity. Wound in meso-colon closed. Origin of hemorrhage retro-peritoneal, blood entering abdominal cavity through bullet wound. Hemorrhage had ceased somewhat and abdomen closed without drainage.

The patient's pulse could not be counted for two or three hours after being returned to bed. She was conscious four hours after operation, and at 6:30 A. M., pulse was 88 and temperature 98.4° F. Except for slight infection in lower angle of wound patient made a good recovery. Operation three hours after injury.

From subsequent events it seems this was reported as recovery a little prematurely. The patient left the hospital in about a month and later returned having developed a subphrenic abscess. She was subjected to operation and died about three weeks afterward.

Nothing abnormal was found in the lesser peritoneal cavity. The bullet had passed through the posterior wall of the stomach in such situation that the wound could not be found and sutured. Infection had evidently traveled upward and reached the surface of the liver.

While the patient recovered after gunshot wound of the abdomen, she succumbed to subphrenic abscess which developed as a sequence to the injury, death occuring about three months after injury was received.

It seems hard to believe that love is merely the increased functioning of a few endrocrines.

The best gift a man can have is the ability to appreciate the things he gets.

The fellow who used to flunk regularly in mathematics now does tricks with the income tax that shame the collectors themselves.

PELLAGRA.*

By B. E. Giannini, Kenvir.

With special reference to the pathological evidence of infection in presenting to you a paper on Pellegra, it is my desire, in the beginning, to state that the writer does not claim to add anything new to the many theories that have already been advanced, but presents a review of this disease with reference to infection as to etiology.

History: Pellagra first appeared in Spain in the year 1700, although Sambon found in his investigations that pellagra was prevalent in Italy in 1720 and had good reason to think that pellagra existed in Italy before 1720. Casal, of Spain, wrote the first book on pellagra in 1735, and described pellagra as *mal de la rosa*, (the sickness of the rose.)

It has been said that pellagra has had six epochs which are as follows:

1st: Spanish epoch, dealing with pellagra in Spain.

2nd: Italian epoch, dealing with pellagra in Italy.

3d: French epoch, dealing with pellagra in France.

4th: Austria Hungarian epoch.

5th: Egyptian and African epoch.

6th :American epoch, including north and South America, chiefly the United States.

Pellagra has been given a great many synonyms by investigators in the early days when the disease first appeared in Spain, Italy, France and in the various other countries in which it appeared, but it was Frapolii, of Italy, who first used the word pellagra, and the word is said to have originated among peasants of the mountainous sections of Italy.

The American epoch in the history of pellagra dates back to 1864, when Dr. John T. Gray, of Utica, N. Y., reported his first case. Pellagra was reported by others in 1883, 1889, and 1902. However, investigation revealed the fact that the cases reported prior to 1880, were practically all imported cases, and from 1880 on pellagra made its start in the United States. In 1907, Dr. Geooge H. Searcy reported the first epidemic in the United States, in an Alabama asylum for negroes. After that cases were reported from practically all the states south of the Mason and Dixon line. Since 1907, many articles have been written by scientific investigators and students of the disease.

Etiology: As to the etiology, much has been said and many interesting papers read on this one subject, and yet this question is unsettled. It is true that some of the theories advanced merit serious consideration. At this time there seem to be two views which stand out above all of the theories advanced as to the etiology of pellagra.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

First, that pellagra is a deficiency disease.

Second, that it is an infection of some kind.

But in one point, we must all agree; that a theory is one thing and its proof is quite another, and that each of the many interesting theories advanced must forever remain in the domain of theory until one, or all of them, is shown to be incorrect, or until one of them or a new theory is shown to be a fact, and this proven to the medical profession.

Relative to the deficiency theory, there is no doubt about the effect that an unbalanced diet plays in lowering vitality. Therefore with the physical resistance lowered from a deficiency diet, you are more susceptible to, not only pellagra, but to many other infections, and I believe that a deficiency diet, probably of a different character, plays the same part in scurvy and beri beri, two others so-called, but not positively proven, deficiency diseases. Investigation may yet prove beri beri and scurvy to be caused by infection.

Pathological evidence of infection in pellagra calls our attention to the pathological findings in pellagra. In June, 1908, I saw my first case of pellagra. Since then I have seen and treated more than 1,000 cases, and from the beginning have been an advocate of infection and, therefore, all of my experiments and investigations have been directed along that line.

After a very careful study of the first cases I treated, I discarded the cornmeal theory and began to look for another cause and I found in every home, without a single exception, an abundance of bed bugs. This led me to the belief that the bed bug was the medium by which pellagra was carried from one to another in the same way as the flea carries in bubonic plague, the mosquito in malaria, and the tick in mountain fever. I have never failed to find bed bugs in the home of pellagrins and I am convinced that where there is pellagra there are bed bugs.

At Cary, Kentucky, a mining town of five hundred people, forty cases were found confined to families who visited frequently among themselves, while the other part of the camp was free from pellagra.

At Coalmont and Straight Creek, two Kentucky mining towns, there were houses called pellagra houses because of the fact that after the first pellagrin lived there, some one or more members of the family moving in later developed pellagra, and in each and every case I made careful investigation and always found an abundance of bed bugs present. It is a very easy matter for the bed bugs to be carried from one house to another on the pellagrin's clothing, etc. The majority of my cases have admitted to having been exposed to bed bugs that could have been biting pellagrins. Some few are ashamed, of course, to admit the presence of bed bugs.

In my investigations and research work, I was very ably assisted by my friend and colleague, Dr. W. H. Garlington. Dr. Garlington made a study of one hundred cases, making blood counts in every case. In all cases anemia was found directly in proportion to the severity of the other clinical symptoms. The white blood cells were markedly increased in acute cases, especially in robust patients. The white cell counts showed a leucocystosis in all cases ranging from 10,000 per cubic millimeter of blood to 24,000. The differential count showed a decrease of the eosinophiles in all cases. Several hundred white cells often counted before an eosinophile was found There was a moderate lymphocytosis found in all cases.

We selected twenty cases at random in which to search the excretion and skin lesions for any abnormal micro-organisms that might be found present. Some were made from saliva, urine, feces and skin lesions, repeatedly using various stains on different occasions and in no one case did we find any abnormal organism. Special caution was taken in taking smear from the site of the dermatitis. The part was cleansed with soap and water, then dried and the part scraped with a sterile knife until the scales were removed and the blood serum was oozing from the surface. From the serum the smear was taken and stained with carbo-fuchsin, Wright blood stain, methylene blue and various other stains and in no case were there any abnormal organisms found.

Pathological Anatomy: In searching literature for pathological evidence of infection, I find the following to be generally accepted:

Meninges and Brain: Milky opacity of the piamater and thickening of piameter and arachnoid is found in most cases to be diffuse, often accompanied by a purulent exudate or a hemorrhage extravasation under the arachnoid. Frequently edematous softening was found on the surface of the brain. Microscopic examination shows fatty pigmentary or calcareous degeneration.

Spinal Meninges showed circumscribed areas of pigmentation with hyperemia. The cerebro spinal fluid often found turbid and reddish in color. Spinal cord, itself, showed pigmentary degeneration of the lateral columns in the dorsal regions and of the posterior columns in the cervical and dorsal regions. All of the internal organs show some fatty degeneration and in the acute cases atrophy of the walls of the intestines was found. The skin shows the characteristic dermititis.

Pathological evidence shows that pellagra is infectious:

1st: A relative increase of lymphocytes as in syphilis, sleeping sickness and has a lymphatic infiltration of the brain with mononuclear cells.

2nd: Pellagra shows increase in lymphocytes of the cerebro spinal fluid.

3d: Pellagra shows at certain stages a marked leukocytosis similar to the leukocytosis in malaria, a protozoan disease.

4th: Pellagra, syphilis, Kala Azar, malaria and sleeping sickness are all benefitted alike by arsenic treatment.

5th: The nervous system is involved centrally as in syphilis, Kala Azar and sleeping sickness. Pellagra, like leprosy, has peripheral nerve formications, burning numbness and pain.

6th: Pellagra, like malaria, shows a complete absence of eosinophilia. In pellagra, frequently a thousand leukocytes have been counted without the occurrence of a single eosinophile cell.

7th: Diarrhea is a characteristic of infectious diseases, rather than chronic intoxication, as illustrated by cholera and some forms of malarial fever.

8th: Like hookworm disease, pellagra produces eye changes and often the formation of cataracts. These cataracts in hookworm disease are probably due to toxines elaborated by the worms and circulating in the blood and lymph for long periods. An infection may exist in pellagra with a similar action.

Other evidences of infection, pellagra occurs in tropical and sub-tropical climates where infectious diseases and especially diseases caused by parasitic protozoa and parasitic worms are prevalent. Wherever pellagra occurs, malaria and hookworm disease are found and nearly always amebic dysentery.

Pellagra is distinctly a rural disease and develops on farms and in homes where environment is rural, and among the poor. It is more common in females than in males. Both eat the same food and a food poison affects both sexes alike, but the reason for its occurrence more often in females is that they are exposed to the infecting agent more than the males.

I have seen small children often develop pellagra. It seems more reasonable to believe the development of the chronic disease in small children, some as young as six months, to be due to infection arising from without, than to poison in ordinary food given it frequently and in small quantities.

Parasites, especially protozoa, are active in spring, summer and autumn and inactive in winter. Pellagra is active in spring summer, autumn, and latent in winter.

Infectious diseases are wide spread over the earth as illustrated by such diseases as tuberculosis, malaria and syphilis. If pellagra is not an infectious disease, it is the only disease due to the injection of a poison formed in a grain that has so wide a distribution on the earth, is so chronic in its nature and so persistent in its endemic relations.

In closing, I wish to state that I have investigated along other lines, but in each instance have returned to my original and first theory, and I am today more interested in it that ever before, and I most sincerely believe that if more time and money were spent along lines just mentioned, that sooner or later a new chapter would be written in the history of this most wretched and mysterious disease. American medicine has never failed to contribute her part to alleviate the suffering of humanity and there is reason to believe that American physicians will finally settle the problem of the cause of pellavra by the discovery of the proof of the parasite which causes the disease, and until the ever-present bed bug can prove himself innocent, I shall believe him guilty of transmitting the disease.

DISCUSSION

J. L. Atkinson, Campbellsville: I am not an authority on pellagra. The health officers of the state invaded the stronghold of pellagra, and at that time there was more or less pessimism as to the cause of it as there is today. You, who are health officers, will recall that at the meeting, the treatment advocated was very much the same as that given today, except you will also remember that one old practitioner in the country stated that he had been treating a great many cases of pellagra and obtained the best results from giving the patients lactated pepsin. So, it seems to me, at that meeting the conclusion was arrived at that the results would be practically the same whether we used salvarsan, neosalvarsan, cacodylate of soda, lactated pepsin, or water, as medicinal treatment. I think the consensus of opinion at the time was that the dietary treatment offered the best results so far as I can now recall. We have not made much advance in our knowledge of pellagra. I know very little about the disease. I have seen a few cases, mostly sporadic, but I want to call attention to the one point that so far as I am able to judge, medicinal treatment has very little influence on it.

Curran Pope, Louisville: I think Dr. Giannini has in his paper presented something that is well worth thinking about. It is new and novel to me. I shall certainly bear it in mind in the future. I have seen quite a number of these cases and see them every now and then in the line of routine diagnostic work. I do not know why it is that so many classical cases of pellagra are missed and are diagnosed anything from eczema rubrum up and down the list, and pellagra is missed. For instance, I have here the photographs of what may be termed a classical pair of hands so that a person could not miss it forty yards distant as a case of pellagra, and yet the diagnosis is eczema rubrum, and drifted into my hands for diagnostic purposes, for another condition, which condition I am satisfied was merely a part of the symptomatology and makeup of a pellagrin.

Personally, I have believed this is a nutritional disease, and have followed the work and treatment of those men who have taken that position. I think we may reasonably assume from the symptomatology, from the bilateral distribution of the symptomatology in many instances, that we have to deal with a condition centrally located in the nervous system. I would always be more or less influenced in that respect by for instance, a pair of hands in which the lesions are symmetrically distributed, as we find them in this particular case. Of course, we all recognize that the main symptoms in the trouble are produced through the intervention of the action of the affection upon the central nervous system. Personally, I have treated comparitively few of these cases, not more than one or two. Nearly all of them have been diagnosed and sent back to the physicians who referred them, and I have kept up by correspondence and otherwise with a fair number of them and have always been able to outline the treatment that seemed to give reasonable relief to them, although the results were more or less slow in being attained. The thing that has given me the best results medicinally has been the intravenous injection of neosalvarsan. I have found that to do better than anything else employed in conjunction with a careful regimen and a careful diet in which milk and milk products form a prominent part. I am also satisfied that the avoidance of protein intake, a strict limitation for a while of all meats, for instance, and in their place give green foods and foods that are rich in vitamins—yeast, for example—and some of the capsule preparations containing vitamins. These are based upon the assumption that if we are to accept the doctor's proposition, after the infection is started and has become established, we have to deal then with a good many symptoms which are of a character that points to the clinical need, if we wish to so express it, of a line of treatment that common sense and experience have worked out up to date.

The doctor has opened up one side of the proposition that is extremely interesting. None of us want to see a pellagrin if we can avoid it. No one is anxious, as a rule, to treat pellagra, and if we can find any infective agents or any parasites or any bug that carries the infection and can eliminate it, that is, of course, as the doctor has said, another step that will again record the brilliant advances that medicine has made in late years. Personally, it adds another one to the many personal objections I have to the little bed bug. I think most of us that are cleanly and love a shower bath, and clean linen, despise bed bugs instinctively, and not only that, outside of the dirt and disagreeableness of them, here comes in an excellent reason why I should scientifically and medically avoid them. In this instance, if they are the cause of pellagra, then the little doggeral which stated "The bed bug gets there just the same," is again true.

G. G. Thornton, Lebanon: Although my experience with pellagra has been very limited compared to the gentleman who read the paper, I have seen, as I now recall, in the last five or six years, at least five cases of pellagra. All of them were in females, and all of them, except one, are now dead. One of them that I saw about five years ago under treatment seemed to get well until the following year when evidences of the disease recurred, and under treatment the case was held in abeyance until this year. This year she again appeared for treatment, and promptly under the administration of cacodylate of sodium and other treatment internally, tonics, etc., she has recovered. In one of the patients who died, a woman about 27 years of age, the cacodylate of soda caused an eruption on her face and hands. The trouble with her stomach and bowels disappeared after some five or six hypodermic injections given at intervals. The patient disappeared for two years, then the flu epidemic came along, and she died, and I do not know what the cacodylate of soda would have done in her case. All of these cases I had under observation for a period of some years before pellagra developed. They were all subjects of malnutrition, and most of them had some digestive trouble before pellagra made its appearance.

The gentleman's theory of the bed bug would account for it in some cases, but it will not account for the isolated cases where you have no pellagra cases for the bed bug to bite. However, I believe that the bed bug can carry infectious diseases as typhoid fever and other diseases, but it is hard to account for the sporadic case, even though the bed bug might have been present, but I doubt whether there were any bed bugs in the families that had pellagra. I am bound to believe that there is some disturbance of the digestive organs and of the metabolism some where that is one of the active causes in producing this trouble.

W. E. Gardner, Louisville: I have been considerably interested in the subject of pellagra since we had an experience with it at the Central State Hospital at Lakeland ten years ago. During the year there were so many cases in Kentucky, we had 30 or 40 cases develop at the Central State Hospital. We believed at that time the condition was due to the ingestion of corn or corn products. That theory, which was held a number of years ago, I believe has been given up. The most generally accepted theory as supported by the literature at the present time is that it is due to some nutritional disorder, an unbalanced diet, or a too monotonous diet of any particular kind. The theory advanced by Dr. Giannini is interesting, and I am sure we are all ready to encourage him in the original work he has done along this line, and I am sure, further, we will be on the lookout hereafter for the possibility of the transmission of the disease in the ways he has indicated.

He did not refer to the mental symptoms that commonly develop in this disorder. He spoke of the extensive pathologic changes which take place in the brain and nervous system, and where we have so much pathologic tissue we are very likely to have develop not only many neurological symptoms, but also a distinct psychosis. The neurological symptoms are always of interest. We have here a condition which reminds one of multiple sclerosis, sclerotic patches in the cortex of the brain, sclerotic patches in the lateral columns of the cord, producing a spastic gait, ankle clonus, Babinski, etc. Mental symptoms do not occur in every case. There seems to be a tendency, however, to the development of confusional psychosis. The predominant form of mental disorder in every case seems to be confusion. Some patients develop acute melancholia or acute mania; a few cases of dementia precox are observed in this condition, but the probabilities are the dementia precox existed previous to the invasion of the disease. The consensus of opinion by the best observers along the line of psychosis is that the most common form is that of acute confusional insanity, with disorientation of time and place, confusion in thought, auditory hallucinations, and with depression of spirits, which reminds one of melancholia, but it is, in fact, a part of a confusional psychosis.

As to recovery from pellagra, it is essentially a disease which recurs from year to year. Personally, I have not seen cases that have remained permanently well. A great many of our cases at the Central State Hospital died; others who did not die developed a certain spastic gait and emaciation, and were never as well physically as they were previous to the invasion of the disease. While there are cases reported that have recovered, it seems to me, the tendency is for these cases to go on with recurrence from year to year, with an unfavorable outcome in the long run.

W. J. Joyner, East Bernstadt: I have seen some forty or fifty cases of pellagra in the last ten years, and my experience has not been the same as Dr. Giannini's, in that I have had more sporadic cases, just one case in a family. If the bed bug causes it, it is a new idea. I do not know whether it does or does not. If the bed bug causes pellagra, it causes it in a number of families and leaves the majority of the members of the family uninfected. Why, I am unable to say. I do not recall ever having seen more than one case in any one family. I had a young lady with pellagra who went to the mountain region in West Virginia. Her sister followed her, and a physician diagnosed the case of the sister as pellagra, and referred her to me for treatment. I made a diagnosis of eczema of the hands, and not pellagra, although the sister had a pronounced case of pellagra. If the bed bug causes the disease why don't we have more cases than one or two in each individual family?

B. E. Giannini, Kenvir (closing): I wish to say that in my opinion 75 per cent of patients with pellagra will recover. I have seen as many as four cases in the same family. I wish to thank the gentlemen for their liberal discussion of the paper.

Toxicity of Chenopodium.—Lellis protests against the common assumption that chenopodium is highly toxic. He insists that any disturbances that have followed its use were due to the chloroform or other drug or vehicle given with it. His extensive experience has demonstrated, he says, that adults can take up to 50 drops, but this is not necessary, as 30 drops amply answer the purpose. He gives 10 drops to infants under 12 months and 15 drops up to 18 months; 20 drops from this to 4 years, and 25 drops between 4 and 10, with 30 drops after this. The amount of castor oil ranges from 15 to 35 gm. He has found chenopodium given alone—without chloroform—the best vermicide against different kinds of helminths, and superior even to naphthol for hookworm. He has never had the slightest mishap with it in the two years he has been giving it in this way at ten day periods.

URETHRAL OBSTRUCTION: URINARY RETENTION AND EXTRAVASATION. CASE REPORT.*

By Owsley Grant, Louisville.

A negro, aged about twenty-five years, was admitted to the Louisville City Hospital during the summer service (1921) with absolute retention of urine because of urethral obstruction and was tapped suprapubically by an interne to afford immediate relief. A surgeon on the visiting service later saw the patient and tried to introduce a catheter, but failed, and if I mistake not, tapping was repeated three or four times. Abdominal swelling finally developed and had existed four days when I saw him.

At the time of my visit, the patient appeared very ill, temperature 104° F., and a hard, tumor-like mass could be felt in the lower abdomen. From the symptoms present I concluded that the swelling was due to extensive extravasation of urine into the tissues. Incisions were carefully made on the left side over the greatest swelling which proved the correctness of the diagnosis. The surgical wound was carefully palpated and I am certain the peritoneal cavity was not entered. Drainage was free and the man improved for three days; the fourth day fecal material began to appear in the drainage tract. It is difficult to explain how feces could have gotten into the wound unless the man had an abscess which ruptured and thus opened the intestine. The material was thin and highly irritating to the tissues, hence it must have come from the upper part of the ileum or jejunum.

The man became gradually worse, he vomited almost constantly, feces continued to discharge through the drainage opening, and his condition became exceedingly grave. We then started rectal feeding, used protoclysis, etc., and he soon began to improve. The fecal fistula has closed and the patient has left the hospital well.

This case illustrates to me very forcibly the dangers of suprapubic tapping in cases of urinary retention. I believe it is advisable in such cases to perform immediate suprapubic cystotomy for the purpose of drainage.

DISCUSSION

J. Garland Sherrill: In urinary extravasation the symptoms are so characteristic that the diagnosis ought to be made without any difficulty. I recall a patient who was sent to the clinic for operation with the diagnosis of strangulated femorel hernia. The abdomen was distended nearly to the umbilicus, and by simple palpation the diagnosis of urinary extravasation was readily made.

Like Dr. Grant, I am opposed to suprapubic tapping excepting in emergency cases where it is necessary to give the patient immediate relief. Where rupture of the urethra has occurred with any considerable amount of urinary extravasation there will be a great amount of tissue destruction; the urine in such cases is usually infectious and causes sloughing of the anterior abdominal wall, groin, etc.

In my opinion, perineal section is the operation of choice for relief of this condition. This class of work requires a great deal of patience on part of the surgeon. I remember having seen the late Dr. J. M. Holloway work for an hour with the greatest gentleness before he finally succeeded in introducing a filiform bougie. If a filiform cannot be introduced, then I think the Cock operation should be performed. This is not as serious an operation as was formerly believed. In attempting to dissect through the infiltrated tissue by any method of open dissection, one is likely to do considerable damage, but in competent hands the operation is safe and not difficult.

I had a case on my service at the city hospital much like the one Dr. Grant has reported. An abscess had formed in the abdominal wall which was incised or opened spontaneously and the man was brought to the hospital. When I saw him he had been there for some time and had a four-way fistula, communicating with the urinary bladder, also with the intestines, with four external openings. A number of surgeons had declined to operate upon the patient. I operated upon him and he did well for a week. At that time he ate a tremendous meal which filled his gastro-intestinal canal and he had a typical epileptic convulsion. His abdomen became enormously distended and I operated again to relieve the obstruction, resulting in a complete recovery.

In Dr. Grant's case I do not see how a duodenal opening with leakage could be associated with the lesion in the hypogastrium. It seems to me the opening must have been in the ileum or jejunum and not in the duodenum, which is more or less fixed. In the presence of plastic peritonitis an abscess might rupture into the upper part of the intestine, but in the case reported I do not believe the opening was in the upper part of the small intestine as stated by Dr. Grant.

In performing the Cock operation the finger is inserted into the rectum and the prostate gland located. With a straight knife an opening is then made directly into the bladder. Some prefer to open above and drain by retrograde catheterization, but the perineal operation permits free drainage and immediately relieves the urinary retention.

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*Read before the Louisville Medico-Chirurgical Society.

A number of incisions should be made into the tissues where urinary extravasation has occurred to prevent sloughing of the fatty tissue.

Louis Frank: I have operated upon a number of patients for urinary obstruction and extravasation. In some of them the urine had burrowed and caused sloughing of tissues high in the loin. I have seen one death following operation in a case of this type.

My practice has been to operate through the perineum and I can see no objection to emptying the bladder in that way under such circumstances. I must confess that I have not attempted to pass the knife directly into the bladder according to the method of Cock, but have dissected the perineal tissues and then introduced a knife, using forceps to dilate the opening, following this with a tube for drainage purposes.

Dr. Sherrill will recall a boy admitted to the hospital who was supposed to have a strangulated hernia, but examination showed an enormous extravasation of urine into the tissues of the lower abdomen and scrotum. It is important in such cases that numerous incisions be made to relieve tension on the tissues.

That the perineal operation is such a difficult procedure I do not agree; it is purely a question of surgical technique and anatomic knowledge. I believe the perineal operation is preferable to the suprapubic in cases such as cited by Dr. Grant.

Owsley Grant (in closing): There are two principal reasons why I oppose the Cock operation. First, it has to be performed without a guide; second, one may fail to enter the bladder with the knife and thus inflict considerable damage upon the surrounding tissues. An enlarged prostate gland would tend to deflect the knife.

Another objection to the Cock procedure, where retention exists, is that the bladder is quickly and completely emptied. It is of such paramount importance to empty the bladder gradually in such cases that I have never performed the Cock operation.

It is a simple matter to open the bladder suprapubically and insert a drain, then if necessary use retrograde catheterization.

THE MENACE OF THE WINDOW

Luxiria, Ark., Dec. 30.—"Babe" Poole, a well known farmer six miles north of here living in the Sandy Ridge neighborhood, was assass inated last night about 8:30 oclock, by being shot through his kitchen window by an unknown person. —Memphis Commercial-Appeal.

TREATMENT OF ACUTE MASTOIDITIS.*

By D. M. Griffith, Owensboro.

As indicated by the title this paper will be limited to discussion of the treatment of acute mastoiditis. Treatment of acute mastoiditis must be considered under the following heads: First, the use of various measures in the hope of aborting while yet in the inflammatory state, combined with the establishment of better drainage through the middle ear and aditus; and secondly in the more severe and serious cases securing drainage through external opening via antrum and cells.

The dictum of Senn that "Suppurative inflammation of a mucous membrane is always preceded by a catarrhal stage, during which the amount of the physiological secretion is greatly increased" makes it certain that in every case of acute mastoiditis secondary to suppurative middle ear trouble there is always an inflammatory state in the mastoid prior to the formation of pus and it is in this state that our abortive art must be applied to be successful.

In no condition is drainage more the rule of reason than when applied to acute mastoiditis. It is just as essentially the first feature of the abortive treatment as it is the aim and objectve of the operative. Whatever the abortive treatment may be, it is the law of logic that the first step thereof must be (if not already existing) the establishment of free drainage through the aditus and middle ear. That is best accomplished by enlarging the drum perforation if there be one and if there is none a free paracentesis, making the incision at the bulging point and extending it upwards and backwards on to the posterior wall of the meatus, thereby not only securing drainage but by opening the annular plexus of vessels near the tympanic membrane depleting the parts, which increases the flow of blood through the tissues, increasing their resistance and hastens the subsidence of the inflammatory process. It is my policy at beginning of acute mastoiditis to irrigate the canal and ear with antiseptic solution; to secure active bowel movements; to administer a hypodermic of morphine once or twice only for fear of marring important symptoms; to apply cold, because cold tends to minimize inflammatory processes, lessens the swollen membrane which removes, to some extent, impediment to free escape of secretions. If, at the end of thirty-six hours, the pain is relieved or considerably lessened and the scanty discharge made profuse and free, showing that the pressure in the area is relieved, I venture to continue it for another twenty-four or thirty-six hours; but if at the end of thirty-six hours there is still great pain and a scanty discharge and the patient is free from the influence of narcotics, I discontinue the cold and apply heat and leeches, if I can get them, because in my experience at this stage, heat is much more soothing and satisfactory to the patient than cold. Leeches constitute one of the most reliable remedies in the early or semi-early stages of this disease, and I am convinced that they are not used often enough in these cases. As to whether heat or cold should be used, it is in my opinion not half as important as how long the one used should be continued. The danger of delaying a correct interpretation of the progress of the pathological process by unwise continuance of heat or cold is exceedingly great and constitutes a menace to the patient not to be underestimated by the inexperienced.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, September 19, 1921.

The philosophy of an ounce of prevention being better than a pound of cure is doubly true in the case of mastoiditis. If the modern method of prevention was applied to mastoiditis by the general practitioner calling the otologist to do a free and effective paracentesis during the preceeding otitis media, it is certain there would be fewer cases of mastoiditis brought to operation; because early drainage, especially in the case of firm, unyielding drums, would prevent the extension of the infection to the antrum and cells and thus avoid a more serious extension to labyrin, the cranial cavity or large blood channels.

A considerable percentage of chronic mastoiditis arises from negligence or improper treatment of the acute condition. To simply relieve the discomfort and distress incident to acute mastoiditis and permit the discharge to continue is to say the least a false cure. It should be as much the aim as well as the duty of the attendant to arrest the discharge as to relieve the distress, for only by so doing can he protect his patient against that train of serious, and ofttimes fatal, consequences which follow in the wake of chronic mastoiditis.

Having failed to relieve the distress, to arrest or at least lessen, the discharge in a reasonable time, say five to seven days, and all or more of the symptoms persisting and possibly aggravated an external operation via the antrum is not only warranted but imperative.

When to operate on acute mastoiditis has been tersely expressed by Dr. Frederick E. Franchere, Sioux City, Iowa: "When the pain and tenderness show no tendency to subside, when the discharge from the ear persists or increases in quantity and the general condition of the patient is not improving, it is time to make a complete exenteration of every mastoid cell that can be found." He should have advised the positive evidence of x-ray. Procrastination in cases that are not doing well under the abortive treatment invites not only danger and disaster but gives evidence of either timidity or ignorance on the part of the surgeon. By whatever means additional relief is to be secured it must be done at once. The family and patient must be advised of the dangers incident to further delay and that life as well as the function of the ear are best preserved by prompt and proficient surgery. The disastrous results of mastoid operations when performed by the general surgeon and the recovery and relief following the work of the specialist, have long since convinced the profession, and particularly the general surgeon himself, that it is an operation which belongs not in the domain of the general surgeon but strictly within the province of the otologist.

From the fact that this paper is before a society of specialists, I deem it unwise to go into detail of the operative technic of mastoid operations, suffice it to say that once an operation is determined upon, it should be made complete to the extent of removing as far as possible all diseased tissue. The Wild incision in this day of successful surgery is wholly untenable. Not only should the antrum invariably be entered but also the big cell at the tip, in fact, it is my policy to remove most of the tip itself. I think we can not too strongly condemn the practice of even as great an authority as Politzer who does not open the antrum except there be a diseased tract leading to it. While I cannot claim the experience of more than a few hundred cases in mastoid surgery that experience has taught me much and I am fast becoming a firm follower of Whiting in removing the zygomatic cells, or at least, inspecting those cells that exist at the root of the zygoma, especially in cases of two or three weeks' duration. I am satisfied that has saved me a second operation in not a few cases. Though the authorities do not insist upon it in operation for acute mastoiditis, my experience makes me always careful to curette the cells of Kirschner. In two secondary operations I found the focus of infection there. So it is plain that to fail to enter the antrum is dangerous and to simply enter it and go no further, too frequently invites distress, and ofttimes disaster. It leaves three prominent points, the big cell of the tip, the zygoma and the cells of Kirschner as probable foci of subsequent infection.

Failure to do a mastoidectomy has not only in many cases caused death, but has produced a thickening of the parts in the middle ear due to prolonged passage of pus over them and a diseased condition of mucous membrane lining cells and bony parts forming them, that makes permanent the discharge and greatly impairs or completely destroys the function of the ear. We specialists see constantly such cases the hearing of which could have been saved by a timely mastoidectomy, and this paper is intended quite as much a plea for the preservation of the function of the ear as a guard against the fatality of a given case.

THE INDICATIONS FOR THE SIMPLE MASTOID OPERATION.*

By H. G. Reynolds, Paducah.

If all cases of suspected mastoiditis that present themselves for examination had typical symptoms the matter of diagnosis would, indeed, be easy, but as this is not always true, and with the anatomical variations that we find in the mastoid of different individuals, it is not surprising that there should occasionally arise a doubt as to whether or not we should do a simple mastoid operation.

As an excuse for presenting this subject, I have had a number of patients consult me during fifteen years of practice, for diagnosis of mastoiditis and advice as to the necessity for operation. All of these patients had been advised to have mastoid operations previous to seeing me. Some of them were simple acute purulent otitis media with slight tenderness over the mastoid and only required the ordinary local treatment in the office for relief. Others were put to bed and treatment carried out along the usual lines. All of them were, within the first week or two weeks of their trouble and with more or less simple attention from five days to two or three weeks, cured with good hearing and a cessation of the discharge. I have the records, and have had the privilege of seeing these patients every year or two and they have had no further ear trouble. Most of them have had some nose or throat surgery for the relief of obstructions. I believe that the one advising operation, previous to my seeing them, made a snap diagnosis, as in some of them there was very little excuse, in my mind, for such advice. This is, no doubt, to a certain extent the experience of a great many of you, but what I want to bring out is the necessity for extreme care, and that we use all means at our disposal in an effort to arrive at an accurate diagnosis that we may, in this way, not advise operatons too early, at the same time not delay too long.

Painstaking care in the beginning of acute otitis media, making, of course, an early incision and if necessary repeating the incision of the drum membrane, will, as we all know, bring about a cure in the majority of cases. In the absence of sufficient symptoms, especially in the first week of acute otitis, I don't think we should be too eager to operate.

I do not believe there is any means that is of more aid in clearing up the doubtful cases than the x-ray. By it we are able not only to make out a cloudiness that indicates involvement of the cells, but as stated by Keith in a recent article in the Journal, "In the acute cases it is not always of service in diagnosis but it certainly reveals the amount of cell wall destruction, the character of cell, and if any zygomatic or accessory cells are present. The mastoid cells of opposite sides match in type, size and shape as much as eyes or ears of that individual. By seeing the type of cells it is of great aid in prognosis. The pneumatic type affords better drainage and prognosis without operation."

Dr. Dabney places it first among laboratory aids in diagnosis and he states that in obscure cases it has often enabled him to decide for or against operation. Keith further states that if we are ever misled it will be because we have a poor plate, or a poor interpretation of a good one. There can be no doubt of the truth of these statements of an expert radiologist, and we will be wise to heed his further injunction, that is, "Honesty in interpretation and honesty in the practice of such work."

No doubt that we have all had read, something into a plate that did not exist, and was proven not present at operation. Personally, I have been very fortunate in this respect. In our hospital we have a particularly capable radiologist, and his interpretation of mastoids has been correct in every instance. I don't intend to convey the impression that I regard the x-ray as essential in every case to the diagnosis of mastoiditis, in fact, as stated before it is pretty generally agreed that it is not of service always in diagnosis of acute mastoiditis. I suspect most of you are like myself, its use is almost always confined to the doubtful cases, although its use in all cases is of value and it should be used more frequently. The expense, unless we feel the absolute necessity, causes some of us not to advise it in every instance.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, September 19, 1921.

I have no desire to go into a lengthy discussion of the classical symptoms of acute mastoiditis, but shall mention them briefly and I hope they may be elaborated on in the discussion.

It seems to me Phillips has drawn a picture of the classical symptoms of mastoiditis in the briefest and best manner of any authority whom I have consulted. He says: "The drooping of the posterior superior canal wall together with bulging of the upper segment of the drum-head, the pain on pressure over the mastoid antrum and mastoid tip, and mastoid emissary vein, the significance of which must attach to constant and excessive otorrhea, which resists all approved measures of local treatment, constitute the classical symptoms of acute purulent mastoiditis."

The drooping of the posterior superior meatal wall, due to extension of pneumatic cells along the canal by inflammatory invasion, constitute, in the opinion of most otologists, a pathogonomic symptom of mastoid involvement. In infancy, that is up to two or three years of age, the sagging of the canal is in the superior part, because of the difference in the anatomy of the infant. A child's antrum and attic lie almost directly above the tympanic ring.

Pain on pressure is a reliable sign of the disease but in the early stage should be considered along with other symptoms, and from day to day notice any increase or extension. The pressure sign is valuable only if we bear in mind the thick cortex and sclerotic type of mastoid in which we might not elicit tenderness even with extensive involvement. While with a thin cortex and pneumatic cells, tenderness on pressure usually appears early in the disease.

Copious and persistent discharge accompanied with or without pain, are symptoms that may mean much, depending, according to Haskins, on the infecting agent. He says that staphylococcal and influenzal infections are accompanied with more copious discharge than the streptococcal, or pneumococcal infection. A copious discharge without pain showing signs of lessening from day to day, may mean, according to the same authority, middle ear infection alone.

Temperature is dependent to some extent on the underlying exciting cause, and we may have little or no temperature and still have an extensive involvement of the mastoid. In infants and children temperature is usually higher, but I am sure you have all had my experience that after the subsidence of the acute, or first days of the attack, we have occasionally had children come to the office practically free from fever and pain, and on examination find extensive mastoid involvement. It is claimed by some authorities that the middle ear is rarely involved without a corresponding involvement of the mastoid. Granting this, we know that comparatively few cases of acute purulent otitis media actually come to operations.

While on the subject of mastoiditis in children, I cannot refrain from mentioning an article by Glogau entitled, "The chances of cure in mastoiditis by tentative tonsilloadenectomy," appearing in the Laryngoscope a short time ago. He reports thirty-five cases of mastoiditis cured in children under eight years old by removing the tonsils and adenoids during the attack. He excludes from this series those caused by the exanthemata, especially measles, and other complications such as meningeal symptoms, or sepsis, and streptococcus capsulatus and those cases where x-ray showed necrosis. These were excluded from the conservative operation.

Some authorities are inclined to consider a differential blood count as of doubtful value in diagnosing acute mastoiditis. Others regard a marked increased leucocyte count and an increased polynuclear percentage, in conjunction with other symptoms of the disease, as tending to a diagnosis of mastoiditis. Regardless of the difference of opinion in the matter of blood count in this connection, no well regulated hospital would sanction the handling of a threatened mastoiditis, (and I am presuming that all cases of threatened mastoiditis are advised to go to a hospital,) without this being done at a routine.

The value of bacteriological examination of the discharge from the ear is regarded by Haskin as of value in diagnosis provided the canal is cleansed with iodine, making it free from bacteria. The pus is then withdrawn with suction apparatus. Tivnen, on the other hand, regards bacteriological examination of doubtful diagnostic value. McKenzie looks upon streptococcus capsulatus as responsible for an obstinate and virulent form of the disease, usually terminate in meningitis. While Dench reports thirteen cases of acute purulent otitis media in which the streptococcus capsulatus alone was present, and only three came to operation.

Accepting the more radical view of McKenzie as correct, in the main, I agree with Kerrison that we cannot prognosticate from the organism found in the discharge, the future course or severity of the disease, this being a question determined by a normal or lowered resistance. Another authority states that the origin, causes and duration of acute purulent otitis media depend less on the virulence of the infecting organism and more on the local diseased process.

I think Kerrison summed up the matter of dealing with the mastoid when he said we should avoid dogmatism. The patient should be seen daily, and if at the end of three or four days the discharge is less, and the tenderness is less marked over the mastoid, the patient is to be regarded, provided improvement in his condition prevails, on his way to possible recovery without operation. On the other hand, should the symptoms persist, or become aggravated, or remain practically the same with an elevation of temperature, operation will be called for.

A more radical view is taken by the late William Ballinger, along with others, when he says spontaneous cures of acute mastoiditis should be looked on with suspicion, as in nearly every case it amounts to nothing more than a remission of the disease.

A simple mastoid operation is a comparatively simple procedure and promises results far in excess of the usual danger attendant upon its performance, but I am sure that it is the desire of every otologist to escape the operation for his patient whenever possible.

With this difference in opinion among our best authorities as to the significance of some symptoms, in doubtful cases there might arise confusion as to when, and when not to operate, but as I stated before, I believe that the x-ray will play the most prominent part in the diagnosis of such cases. The primary type, particularly, calls for our best efforts at diagnosis, and I believe it was in a case of this type that Dr. Stucky reported a patient as coming under his care, after having been the rounds for relief, of obscure symptoms and by the use of the x-ray he was able to make the diagnosis mastoiditis, which was verified at operation, being extensively involved.

Finally, I think that every otologist should carry in his mind this thought, that aside from the primary complication of a single mastoiditis, such as meningitis, sinus thrombosis, there are secondary complications such as loss of hearing and chronically discharging ears that demand operation when these are threatened.

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DISCUSSION

S. S. Watkins, Louisville: I enjoyed very much all three of the papers that have just been read. They were unusually interesting and instructive.

I think we should try to be as conservative as possible in treating acute mastoiditis for, as has been said, some cases will get well without operation if we give them the proper treatment; such as wide incision of the tympanic membrane, frequent irrigations of the external canal, hot applications, etc. But, on the other hand, we should avoid being dilatory and too long postponement of the operation; for it is better to operate too early in ten cases than too late in one. Usually, I give my cases three weeks in which to clear up, provided the symptoms are not alarming. When at the end of this time the aural discharge, headache and tenderness persist and show no sign of improvement, I urge operation. It is very rare for such a case to heal spontaneously. However, when the patient becomes fatigued and complains of a heavy feeling in the head, we should be very suspicious of extensive involvement of the mastoid bone and not postpone any longer the operation. Also, I consider a high white blood cell count—18,000 per cubic millimeter or over—and a definite shadow in the x-ray film as strong evidence in favor of early operation. Bacteriological evidence is sometimes valuable in deciding when to operate, provided the culture is taken just after making the incisions in the tympanic membrane, that is, before the discharge becomes contaminated with the flora of the external auditory canal. I consider an infection caused by any of the streptococci group or by the pneumococcus mucosus as an indication for early operation, for experience is shown that nearly all of these cases fail to get well without operation and that, when neglected, quite a few develop serious complications.

Sagging of the posterior superior wall of the external canal, while not present in every case, is, when seen, almost pathognomonic of acute mastoiditis. The point made in Dr. Doyle's paper that tenderness is not always present when the cortex of the mastoid bone is thick, is an important one and should not be forgotten.

Always just after performing a mastoidectomy, I remove, when present, the adenoids. This is, in my opinion, a very important step in the operative treatment, because nearly every case of mastoiditis is secondary to an infection in the nasopharynx and diseased adenoids can be, and frequently are, the point of origin for the infection.

C. E. Purcell, Paducah: It strikes me that we have a very important class of subjects here for discussion and in addressing myself to Dr. Griffith's paper it seems to me wise to keep in mind the old surgical attitude "when in doubt, operate." It seems to me that we would then have the thing pretty well worked out. His discussion of the indications for operations reminds me of the surgeons of a few years ago in their discussion of appendicitis. I can recall when they gave indications for medical treatment and likewise those for surgical treatment. This plan was fought out in societies everywhere. However, as experience was gained in the management of these conditions the treatment was finally narrowed down to the operative treatment, and, as I now understand it, no competent medical man would advise medical treatment for appendicitis. My own conviction is I do not think there is much treatment for acute mastoiditis except operation. I certainly would not rely upon medical treatment long; in fact, if I had a child that had symptoms out of the ordinary I am sure I would not wait on an x-ray and I am equally sure I would not want to wait on a bacteriological examination. It is an established fact in surgery that when we have a pus cavity anywhere in the body that drainage is essential. Mastoiditis is a result of pent up pus or lack of free drainage. If we can make a large incision in the drum membrane and secure drainage, the trick is turned. However, if we fail in this, then we will have to consider drainage from some other source. This drainage ought to be established as quickly as possible. I am sure a great deal of harm can be done by playing the waiting game. It is also true that a great many cases that appear serious get well without any operation. Surgeons tell me that many cases of appendicitis would get well and remain perfectly well without operation; but, as there is no way to tell a serious case from a case that will recover without operation, no doctor can afford to take a chance on awaiting the outcome. There is one thing that we ear men should correct especially with the lay people and that is that a mastoid operation is a severe thing. The mastoid operation is not dangerous in safe hands, but the disease is dangerous. The surgery of acute mastoiditis is essentially one of drainage whether it be through the drum membrane or through the mastoid cells. I recall that I heard Dr. Charles Mayo say that he thought there was too much fuss made about mastoid operations and that it was regarded as being more serious than it ought to be. However, he said that he was sure the only treatment was early and thorough operation. Every years I see what I call ambulance cases. That is they are brought into the hospital unconscious and in most cases suffering from meningitis or other brain complication. If I had mastoid trouble I am sure that I would not want to risk myself in the hands of a man who wanted to play politics and play to the gallery and wait until some complications set in before he acted. My conviction is that the man who boasts of a great number of cured mastoid cases without operation is laboring under a delusion for we all know how dangerous it is to the hearing to permit an ear to continue to discharge even though there are no other alarming symptoms. More than this, we are all familiar with the tendency of a discharging ear to recurrance and a great many of our mastoid cases are old cases lighted up from new infection.

In reference to Dr. Doyle's paper, I was inclined to think it was one that was very unusual. In the indications for the simple mastoid I am sure, as I said before, I would not want to rely on the x-ray. I think the clinical signs are the only ones to place confidence in. We might keep in mind that we had clinical symptoms before we had the x-ray and the laboratory and it seems to me that the clinical symptoms are the paramount symptoms.

I. A. Lederman, Louisville: With reference to the treatmeint of mastoid symptoms, I have long since given up the use of the cold coil, but agree with Dr. Stucky on the application of dry heat.

The principal objection to the use of leeches seems to me to be their effect in masking the important sign of tenderness and I believe that no application should be made at this stage of the disease which may interfere with this symptom.

Drooping of the canal may exist as the only symptom, and in the absence of corroborative evidence I would be slow in making a definite diagnosis of mastoid involvement.

In connection with other symptoms, however, it is, of course, very important. Likewise the symptom of tenderness when present is important, its absence means nothing.

It is said that the thickness of the cortex frequently determines the presence and severity of tenderness on pressure, yet only last week I opened a mastoid which never at any time exhibited tenderness and the cortex was as thin as paper.

Now as to the x-ray: Dr. Reynolds brought out the point that it is important that we have good plates, secondly proper interpretation of the plates. That we may be misled was illustrated in a case I recently operated. Some months ago the x-ray of her mastoid showed what we thought was a large air space, no coils showed over a considerable area, there was not the usual cloudiness or thickened septa. The symptoms subsided. Later, while in another city, she had an acute attack of otitis media. Pictures made at that time which were seen by me later appeared very much like mine but the opinion of the otologist was that it indicated a broken down mastoid. Upon her return to the city I operated on her and found very extensive disease of the mastoid.

I consider the x-ray in the diagnosis of mastoid very important and it is often the thing which balances the scales when we are in doubt.

One other thing, that is, with reference to the thoroughness of operation. Dr. Griffith made the statement that he advocated the removal of all diseased structures. I would go a step further and would advocate the clearing out of all cell structures until a smooth, even cavity has been obtained. In the great majority of cases the mastoid should be completely exenterated.

C. DeWeese, Lexington: I enjoyed these papers very much and some very fine points have been brought out, most of which have been found useful in the hands of the essayists and speakers, but they are not always useful in any man's hands. No absolutely iron clad rules can be laid down, but we must meet the indications as they arise. I do not favor the cold applications or a wet hot one, but prefer dry heat or the hot water bottle, with a free incision of the drum membrane, beginning well down at the bottom and cutting up and posteriorly giving free drainage to the middle ear, and follow this up with irrigation under strict supervision and aseptic precautions with proper feeding and care, which will prevent many mastoids. If, after this treatment has been followed up and we find the patient still septic and pain on deep pressure over the mastoid, it is better then to do a classical mastoid and do it quick. My experience in this line has largely been under the supervision of Dr. J. A. Stucky, with whom I am associated, and it has been most satisfactory.

J. R. Peabody, Louisville: Have nothing to add to what has been said.

One little lesson that I have learned from Dr. Doyle's report is never to say that a case is going to die.

His case report sounds more to me like an extra dural abscess complicating the mastoid infection.

He spoke about the mastoid wound bathed in pus for a considerable period which would indicate that there was present some diseased bone remaining after the mastoid operation.

M. J. Stern, Paris: I don't think I can add anything to what has already been said. I appreciate the privilege of being here.

Gilson E. Townsend, Bowling Green: It is a very interesting case. I would like to know what kind of treatment he had that case on.

There is one thing that he did not bring out very clearly, that is, the necessity of entering the antrum in all cases when doing a mastoid operation.

Dr. Griffith spoke of using, among his preventive measures, an irrigation an antiseptic solution. I would like for him to tell us what antiseptic he uses. I have never been able to find any antiseptic solution that would keep an infection from entering the mastoid.

I consider it almost criminal to use cold applications. You destroy the very symptom that you are going to depend on for diagnosis. You do get a cessation of pain that is very misleading not only to yourself but to the family. Thereby you get in trouble.

I just wonder how many of you in your operations get this sagging of the posterior superior wall. In my experience it has been the exception rather than the rule, to find this symptom.

M. C. Baker, Louisville: My mastoid experience has been very limited. I do, however, want to make one or two statements regarding my experience at Camp Devens. We had quite a number of mastoid cases and they were all x-rayed. In quite a few cases the mastoid readings were positive. The patient came to operation and the mastoid showed negative; and the reverse.

I wish to make another statement to impress upon you as well as myself and that is a positive picture is very useful; a negative picture means nothing.

A. L. Bass, Louisville: I think any of us can get lined up on the typical symptoms of acute mastoiditis and carry out the treatment necessary; but it is the atypical cases which tax our judgment. I saw a case last Tuesday which gave a history of having had pain in left ear for two days followed by discharge which lasted for six days when it stopped. I was called to see him two days later and found upon examination, edema behind left ear, the canal was so closed that I could not get the smallest ear speculum in it, temperature 99.8. There was no pain, not even on pressure behind the ear or traction on same; which would rule out furunculosis. There was not enough redness or temperature for erysipelas. No discharge at that time from external auditory canal. Blood count showed 18,000 leucocytes, with 88% polymorphonuclears. The result of the blood count was sufficient reason to explore the mastoid. The mastoid area was filled with bright red blood, which was indicative of streptococcus hemolyticus infection, and an infection of a fulminative type. The congestion in the canal was subsided so that I could see the drum before he left the operating table. At the same time I removed a good sized adenoid which bled quite a bit for an adenoid. His temperature dropped and he has gotten along very nicely.

In a good many of these cases where the adenoid is of any consequence, I think it advisable to remove it at time of mastoid operation; it relieves congestion around the eustachian tube, helps drain the infected area internally as well as externally, and removes a predisposing factor relative the present condition.

I cannot see why or how Dr. Glogau can cure acute mastoiditis by removing the tonsils and adenoids.

As far as the bacteria involved in the acute mastoid infections, I think we all agree that the streptococcus is the one we most fear; and when present should operate promptly, in most instances. We get the least subjective symptoms with streptococci infections and the greatest bone destruction: they are the most serious infections and the ones we should watch most carefully.

R. W. Bledsoe, Covington: I do not believe we should condemn altogether the application of ice in acute mastoiditis.

There is one instance where it may at least be tried not only with safety but very satisfactory result.

In a given case in which a free paracentesis of the drum membrane has been made and followed by a free discharge of pus for several hours, then suddenly ceases. This cessation may be due to many causes, one of which, though not frequent, is an edema of tissues of the middle ear.

In the absence of other complications, the ice cap may be applied for fifteen minutes and repeated in an hour for not more than three times. The cold will so reduce the edema as to permit of prompt and free discharge of pus.

This technique was carefully worked out several years ago by Dr. Wm. L. Ballinger, of Chicago.

If the discharge is not restored after the third application of ice it should be discontinued and other cause of retention looked into at once.

I regard the x-ray as our most certain aid in diagnosis, giving us a definite idea of what is going on in the various stages of mastoiditis, from the early breaking down of cell walls to large pus cavity formation.

The x-ray findings in my cases have been uniformly satisfactory. The plates are also invaluable to me as a guide to the location of the lateral sinus.

D. M. Griffith, Owensboro: I believe we have all overlooked O. M. S. A. with mastoiditis. The treatment of both acute otitis media and acute mastoiditis is the establishment of drainage and relief of pressure. They are the two purposes of our treatment primarily, and it is then that your leech comes in, because they deplete the parts and thereby relieve pressure.

Pain is a symptom and a very deceptive one in my experience. I take it that a necrotic process is going on faster than the secretioin of pus and therefore you don't, in some cases, get much pain.

There is one symptom that none of us have mentioned that to me is very valuable, and that is deafness, especially when combined with a feeling of fullness in the side of the head.

The sagging of the posterior superior canal wall when present is a very positive sign.

The most valuable symptom to me is tenderness. I can recall two cases in which tenderness with fever constituted the only symptoms.

Now as to doing an adenoidectomy, I have done it several times and have not had cause to regret it, but somehow or other, I cannot become enthusiastic about it. I prefer, unless some decided reason in a particular case, to remove the adenoids afterwards.

I consider the x-ray a valuable aid to diagnosis when we are in doubt, but I believe most of us, who through years of practice, have had sufficient experience to tell by the clinical picture which the case presents. If I had to rely on one of the two, I would much prefer to rely on the clinical symptoms than the x-ray.

I was sorry they didn't discuss another feature, that is, when to open the antrum. I always open it whenever my patient fails to get relief from the lesser measures used to drain the middle ear.

NEW USES FOR ENDOSCOPY.*

By C. E. Purcell, Paducah.

It might appear, gentlemen, from the title of this paper, that I am an expert on the question of tube work. However, I want to assure you in the beginning that I am no expert whatever and the few points that I want to relate are the ones that I have gained from practical experience and the ones that I want to bring out as well as to report a case which is the basis of this paper and furthermore, to bring definitely before the profession the method of procedure in cases of foreign body extraction.

Necessarily the new uses of endoscopy are very limited because, at the present time, tube work in the hands of some of the experts has been narrowed down to the point that it is almost exact. The first new use that I call your attention to is one that I have had no occasion to verify and which is the direct application to the larynx, in cases of whooping cough, of a ten per cent solution of antipyrin. Dr. Yankauer has written on this topic and claims that the course of whooping cough can be very materially lessened and ameliorated by the application of the drug just mentioned. He states that the benefits heretofore ascribed to antipyrin given by the mouth have been by its action in passing over the larynx. If this method succeeds in lessening the course of violent symptoms of whooping cough fifty per cent it is certainly a method worth while and one that the general practitioner can well afford to advise for his patients. It has, however, the general drawback that it can not be used by the surgeon and internist because the application direct to the larynx requires quite a bit of skill as well as experience. For those who are expert in tube work this application can be made in a very few seconds without danger and without any anesthetic. This can be repeated from day to day as often as becomes necessary.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, September 19, 1921.

The special point I have in mind in writing on this subject is a child that had a diphtheritic deposit in the bronchi. This report is an abstract of a full history of the case that will appear in the September number of the Laryngoscope. In the beginning this child had laryngeal diphtheria which was neglected. That is, the parents of the child failed to call the family physician until the child became hoarse and developed a severe cough and difficult breathing. When I first saw the child it had had 20,000 units of diphtheria antitoxin and the involvement of the larynx was very pronounced and it had very difficult breathing. It became necessary to open the trachea at once and we did not have time to get it into the hospital for this operation. A few hours later the child was placed in the Ewart Purcell Isolation Hospital of Paducah. It did well for twenty-four hours when it had very difficult breathing. At first I thought probably the tube that I had used was not sufficiently large; therefore, I removed the tube that I had first used and replaced it with a larger. This did not help conditions much. A hasty examination disclosed that the obstruction was probably in the bronchi as I could see that there was no obstruction in the trachea. As there seemed nothing else to be done, I decided to look in the bronchi and remedy the condition if possible. Drs. J. B. Acree and R. E. Hearne were present. I passed the bronchoscope into the right bronchus and it was occluded with a grayish white membrane. I seized this at once and withdrew forceps, tube and the membranous obstruction. It was a complete cast of the right main bronchus. The same method was repeated in the left bronchus. At this particular time it was very gratifying to note the improvement in the child's condition. It breathed perfectly well, cyanosis disappeared and the child went immediately to sleep. Unfortunately for us and the child, after about six hours of good breathing, the child developed again difficult breathing. It was very evident that another bronchoscopy would have to be done to save the child. In all, probably, we did a dozen bronchoscopies to remove the cast of the bronchi; each time the child would get immediate relief. Dr. Acree had made a diagnosis of diphtheria before the admission of the child into the hospital. As the membranes kept reforming it was positive evidence that we were dealing with diphtheria of the lung. Dr. Acree agreed with me that the child had not had enough antitoxin, so, therefore, we began its administration, giving 20,000 units at a dose. The nurses reported to me that in all, the child was given 150,000 units of antitoxin. Apparently there were no ill effects from the administration of this large amount of antitoxin, and the only evidence of the child's having had antitoxin was a severe rash which developed later; but this is no evidence of larger doses of antitoxin because I have seen it occur with even moderate doses. It was very interesting to observe that at no time did the child have any signs of shock or exhaustion incident to the passing of the bronchoscope. The tracheotomy was done to relieve laryngeal stenosis due to the involvement of the larynx. As we already had an opening in the trachea all bronchoscopies were done through the tracheal wound. This is the first time I have ever done bronchoscopy through a tracheal wound and I doubt very much if it is as easy through the tracheal wound as through the mouth and larynx. If the larynx is uninvolved there is no occasion for tracheotomy and the bronchoscopic removal through the mouth would therefore be indicated.

The other point that is new in our experience and one on which we can find no other report in the literature, is that of passing the bronchoscope through an obstructing membrane and saving the child. During the course of treatment for diphtheria, the child suddenly ceased breathing and there were no signs of life. I passed the bronchoscope through the obstructing membrane in the right bronchus and using artificial respiration the child soon revived and we were able to remove the obstructing cast and thus establish free breathing again. I am sure if I had not had the bronchoscopic instruments at hand that no method would have saved the child's life. I want to say, too, in conclusion with my report of this case, that I don't care for any more obstructions of the bronchi due to diphtheritic deposit. I say this because I was kept away from my private work during the time of these obstructions and it even became necessary for me to live in the isolation hospital during this time. After all I am glad of this experience and to know that the bronchoscope offers a means of saving children that otherwise must be regarded as hopeless.

Another point that I would like to bring before this society is this: who is going to do bronchoscopy not only for diphtheritic deposits but bronchoscopies for foreign bodies and for diagnostic purposes? It occurs to me that we will have to develop somebody in each community who will have the necessary ability to do the work safely and expeditiously. This is strictly a one-man job. Even in big centers bronchoscopy is only an occasional procedure; therefore in smaller places we ought to develop some one who can acquire the necessary experience and be equipped with the instruments necessary to carry the work on successfully. We ought to raise our voices against the indiscriminate attempt of practitioners, and even throat men, because the use of the bronchoscope is a very difficult matter. Even few throat men have the mechanical mind sufficient to apply to these problems and they are just as much a problem of mechanics as that of a cabinet maker. Foreign body extractions are major operations. If we read the reports in the journals and hear the subject discussed in medical meetings, it is surprising to note how few men succeed in this difficult line of work. From newspapers we very frequently see very tragic results from attempted removal of these foreign bodies. A bean in the trachea may become suddenly fatal. I know of a case that remains very fresh in my mind. It was a year or two ago as I was passing through a ward in our hospital, I observed a child with very difficult breathing and was told by the nurse in charge that the baby had a bean in the windpipe. I had almost forgotten the child when two days later the child was brought to my office and died in my waiting room. My office girl rushed in and said there was a dead child in the waiting room. We brought it in and, as I was wholly unprepared to pass the bronchoscope, there was no way that I had of reviving the child. I could not get a post mortem. There had been repeated efforts by a very prominent specialist to remove this bean. We ought to have among our doctors this arrangement: that they will not touch a foreign body case. It ought to go to the man who can do this without adding another injury to an already injured child. Therefore this calls for cooperation among medical men. Dr. Campbell Johnson, of our city, has taken this stand; that he will not even look in the throat when the patient gives a history of a foreign body.

DISCUSSION

Gaylord C. Hall, Louisville: I haven't had any experience with the removal of diphtheritic membrane from the bronchi after the method as detailed by Dr. Purcell.

He has already told you what I said to him regarding the method when he brought it to my attention, but to save my soul I can't recall where I saw it in the literature. Certainly in some of the writings of Lynah I have seen his reports of the removal of diphtheritic membrane by the bronchoscope.

My work in bronchoscopy and esophagoscopy has been largely made up of the removel of foreign bodies.

I agree with Dr. Purcell that it would be far better that one man should have the bulk of all the work instead of many, but I think there is plenty of room for two men in a community of this size in order that they may share in the responsibility of the more serious cases.

I think when a great many men attempt to do this work it spreads the cases out so thin they do not get the experience that is so essential to the efficient handling of these cases.

I certainly don't regard the removal of beans simple. Next to peanuts I think they are the most difficult and dangerous of the foreign bodies. If I were going to say that any of the cases were easy I think I would say that the metalic bodies were.

There is one feature of this work that I have never been able to get solved and that is this. As Dr. Purcell has said, the majority of these cases are practically pauper cases, and all physicians who have done this work have the majority of these cases in this class. In all fairness, I think the community from which these cases come should bear the expense of the work. I don't believe that any doctor objects to doing charity work in his own community, but he should not be asked to do all the work coming from as wide an area as these cases come.

I think it is an imposition to ask men to prepare themselves to do this work, lay in an expensive armamentarium, and have the work and responsibility all for nothing. Each community should be organized for the caring of these cases and the expense of the work should be borne by them.

S. S. Watkins, Louisville: Dr. Purcell is to be congratulated upon the successful outcome of his case. I have not read anywhere of a similar use of the bronchoscope, which is unique and I believe quite original. The usefulness of the bronchoscope is increasing. Dr. Chevalier Jackson several months ago (March 16, 1921) reported in the New York Medical Journal the removal perorally of a stone from a bronchiectatic cavity.

I would like to say here I believe that had Dr. Purcell in the beginning given his patient large doses of antitoxin—40,000 to 50,000 units—recovery would have occurred much quicker. Large doses given early will decrease the need for intubation, tracheotomy and bronchoscopy.

I cannot agree with what has just been said about limiting the number of men who are to do bronchoscopy and esophagoscopy. I have had the pleasure of taking a special course under Dr. Chevalier Jackson (who is one of the leaders in this field and considered by many as the foremost) and I know that it is his desire that more men all over the country take up this work. But, of course, he expects them to well prepare themselves. It is true that it is difficult work but the same is equally true of some other branches of surgery. Also, the cases are infrequent, but when one learns the technique under proper instruction, he will not forget it between cases. Besides, as Dr. Jackson advises, one can keep in practice by working with rubber tubes. Then, too, it is often impossible to take such cases to distant cities—Dr. Purcell's case, for instance. Again, when only one or two men in a city, or a state, are able to make these examinations and treatments, occasions will arise when they are not available. I believe in encouraging all who have the desire to take up this work, but to insist that they prepare themselves thoroughly by studying under one of the leaders in this field, and, that they purchase a complete outfit of instruments, etc. Such will cost, at least, $500.00.

D. M. Griffith, Owensboro: The paper was decidedly interesting to me because I have seen probably more diphtheria than any one present. His applying endoscopy to removal of diphtheria membrane was new to us all.

Endoscopy is not for every specialist, because all cannot, for want of cases, acquire sufficient technique. There are few men willing to prepare and equip themselves. I think it should go to men who possess decided ability; who have spent sufficient money and ample time to prepare themselves. I believe it should be the consensus of opinion of this body that the work go to a few men over the state.

C. E. Purcell, Paducah (in closing): I can hardly agree with Dr. Hall in the statement that there should be two men. It is strictly a one-man job. The great advantage of coming to one man, even in a place like this, is that he will have the experience and practice that can come only by having these kind of cases.

Now in regard to a bean being easily removed, probably Dr. Hall didn't understand what I meant about this case. I said a post mortem.

I heartily agree with Dr. Griffith that it is a highly specialized work; a mechanical procedure based on mechanical ideas.

AS IT IS SPOKEN

"Ah want a quote ob santified milk."

"What you all mean is pacified milk."

"Look here, small one, when Ah needs inflammation Ah'll specify."—Judge

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ASSOCIATED DISEASE OF THE EYE AND NASAL ACCESSORY SINUSES*

By C. DeWeese, Lexington.

The close relation of nasal to ocular disease becomes more apparent as we learn to look for the most important diagnostic points. The eye and the nasal accessory sinuses are intimately related. In fact, the bony walls of the orbit are formed chiefly by the walls of the sinuses. The upper wall is formed largely by the floor of the frontal sinus, while the inner wall is formed principally by the lateral wall of the ethmoid cells, and the floor of the orbit by the roof of the maxillary sinus.

There are five types of accessory sinus disease affecting the ocular apparatus: acute or chronic sinusititis, with external manifestations, as orbital cellulitis, abscess, tumor or edema of the eyelids; sinusitis, without external signs, but accompanied by optic neuritis, retinal disease, scotoma, visual field defects or occular muscle paralysis; sinusitis, as possible cause of glaucoma, iritis, keratitis, uveitis, etc.

Asthenopic symptoms due to sinus disease are usually reflex in nature but may be also due to a toxic process or to stasis in the orbital circulation resulting from circulatory disturbances within the diseased sinuses. It has been found that from seven to ten per cent of the patients who consult the oculist on account of headaches are really suffering from disease of these sinuses.

The location of pain and headache due to sinus disease is not constant for each sinus, although in a general way the walls of the affected sinus are usually painful to pressure and stooping frequently serves to localize pain by causing a sensation of pressure with increase of the pain within the affected cells.

Sinus pain is frequently paroxysmal, beginning and ending at about the same hour each day, and a confusing fact is the inability to use the eyes comfortably during the attacks of pain, leading the patient and his oculist to believe that their origin must be ocular.

In each of these cases, however, there are always intervals during which the patient experiences no discomfort, no matter how much he uses his eyes, and again the pain of a sinus disease may occur at night, unlike the pain of eye strain, which is practically always relieved by rest.

The eyelids may show edema, as a result

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, September 19, 1921.

of frontal or anterior ethmoidal infection and this tends to lessen as drainage is established, being less at night than in the morning. Where orbital involvement occurs the lids become swollen, red, and indurated with edema of the conjunctiva.

The cornea and sclera are rarely affected in sinus disease, although de Schweinitz has observed a wrinkling of the corneal epithelium in a few cases of episcleritis, due to sinus disease.

Examinations of the eyeground and of the optic nerve is ofttimes of little value diagnostically, unless used in conjunction with other refined methods of diagnosis.

Both ophthalmologists and rhinologists have at last reached the point where when in doubt as to the cause of optic nerve disturbances and other diagnostic methods such as x-ray of teeth and sinuses, Wassermann and other examinations of the blood proving negative, they advocate operation within the ethmoid and sphenoid areas. I want to urge you not to delay. I should rather operate too soon, than to wait too long for x-ray and blood tests to be completed, particularly if rapid loss of sight is taking place or pain and mental conditions are present, because it is astonishing how diseases in this area are prone to disturb the mentality of the individual to such an extent as in many cases to be of great value in diagnosis.

In discussing the surgical treatment of the accessory sinuses producing orbital complications, it is necessary to appreciate thoroughly the intimate relations which these sinuses bear to the wall of the orbit. With so close an anatomic relation between these cavities, it is not difficult to understand why the contents of the orbit should so often be affected by pathologic conditions arising in the sinuses, whether from pressure on the walls common to both cavities, from an involvement of the walls in the pathologic process, or by the carrying of septic material through the intercommunication of the veins of the nasal accessory sinuses, with those of the orbital cavity. The sinuses most frequently causing orbital complications are the frontal ethmoidal and sphenoidal.

Gentlemen, the field is wide, and many observations are required and much work remains to be done. We must analyze our facts carefully and generalize from them most cautiously. Skilled labor in our department is what we want, and it is my belief that our great country is to show the world what can be done in this as in other departments of applied knowledge.

In conclusion, the object of this paper is not merely to emphasize what is already fairly well recognized, viz., the dependence of many eye affections on diseases of the nose and accessory cavities. One must insist that the ophthalmologist should at least be able to recognize those nasal conditions that affect the eye, and the rhinologist should have an intelligent knowledge of the ocular symptoms and lesions produced by lesions of the nasal and accessory cavities. The subject under discussion leads us still further afield. Whatever we do in practice, whether we treat diseases of the eye, ear, nose and throat in their entirety or confine our attention to one or more of them, neither ophthalmology nor otolaryngology is sufficient unto itself; each is but a branch—albeit an important and flourishing branch—of that ancient and reverred tree of medical knowledge of good and evil.

I wish to make a plea for the routine examination of the nose in all cases of ocular disease, and also for the exercise of conservatism and careful judgment to avoid operative work upon so important a functioning organ as the nose. Too great enthusiasm in this direction cannot fail to reflect discredit upon this work, and to some extent retard its progress.

DISCUSSION

J. A. Stucky, Lexington: With the first speaker I agree in the main, but wonder if we misunderstood him when he said he advocated a paracentesis instead of myringotomy. By a paracentesis we mean simply a puncture of the bulging membrane, but myringotomy means a free clear cut incision. I wonder if he intended to make a plea for the restoration of one of the lost arts, when he recommended the use of the leech. Personally, I do not use this method of depletion and question its wisdom. I saw many years ago a complication following the use of the leech which could not be attributed to anything else. I have also discontinued the use of the ice coil in suspected cases of mastoid suppuration. I am quite sure there is danger of locking up within the tissues the infection and masking symptoms of the progress of the disease, but I do advocate the use of dry heat, though not moist. In acute suppurative conditions, after a free myringotomy, even when the mastoid is seriously threatened we find good results by thorough irrigation and drainage through the canal, but this treatment must be conducted surgically, by which I mean, as near aseptically or antiseptically as we can, the danger being the entrance, by carelessness, of a mixed infection.

I am coming more and more to believe that if we treated our patients just as actively for three or four days before the expected operation, as we do after the operation, we would do less operating. Put them to bed on a restricted diet, the same as we do after the operation. After the mastoid cells are involved and there is an active increase in leukocytesis and evidence of rapid absorption by sepsis the safest thing to do for the health and hearing is to give posterior drainage and do a complete classical mastoid operation. If this is done and the blood clot method is used the patient is usually out of the hospital in five or six days or a week.

I am sorry Dr. Reynolds did not say more of the differential indications for the operation in the acute mastoid involvement. With me these are first, the evidence of absorption of septic material, the sagging of the posterior superior wall of the canal, tenderness on deep pressure over the antrum and tip. If the patient is septic, notwithstanding the free drainage through the opening of the drum membrane, the sooner we open the mastoid the better.

I can better illustrate what I want to say in discussing Dr. DeWeese's paper by calling your attention to the colored drawings taken from Sluder's work of the nasal sinuses. I believe the diseases of the attic of the nose, ethmoid, and sphenoid and their accessory sinuses, cause more misleading symptoms than exists in any other part of the body. I also am sure we have been doing more injudicious surgery and as a result have met with more disappointment than in any other part of the body, and yet I do not know of any part of the anatomy where skillful caution and surgical judgment is more indicated and accomplishes more far reaching results than in this region. The pain referred to by the essayist, as a result of the involvement of the ethmoid, sphenoid and nasal attic, may be due to a positive or negative pressure. If due to the former it is caused by pressure from within out, if to the latter from without, in. The average or minimum amount of moisture within the sinuses if blocked up by obstruction, in the process of absorption will cause intense pain. One of the most beneficial local treatments which I have used in combatting the acute congestive and inflammatory condition in the upper and back part of the nose, is that advocated by Sluder, which is a saline alkaline saturated solution made of

Chloride Sodium,	gr. 55
Bicarbonate Sodium	gr. 55
Sacchari Lactis	dr. 3
Aqua Dist.	oz. 16

This is used in a small nasal douche cup, two or three times a day, and this local treatment, combined with rest in bed, free purgation, and restricted diet, I am quite sure prevents and relieves many serious suppurative conditions.

J. D. Heitger, Louisville: I have been rather interested for a number of years in the subject of Dr. DeWeese's paper, having done a great deal of work along the lines as suggested by Dr. Sluder.

The most important thing in these cases, as in everything else, is a proper diagnosis, and this sometimes requires considerable study and repeated examinations in order to give us all the data necessary for a correct diagnosis.

Doctors Stucky and DeWeese spoke of the suppurative and hyperplastic conditions. These two types are entirely different. The hyperplastic type may be entirely free from any discharge, or the discharge may be a thin, colorless mucous secretion which can't be seen with the ordinary methods of illumination. Some of the most painful hyperplastic types I have seen, in which both the ethmoids and sphenoids were involved, were apparently entirely free from secretions as repeated examinations failed to show its presence at any time.

When you consider that you have quite a long narrow space to be illuminated, the distance from the mirror in posterior rhinoscopy to the roof of the olfactory fissure being six to nine cm., you can readily realize the importance of having a pure, bright, brilliant, white light. Sunlight gives such a light, but it is not always available, and when focused with a mirror there is a great tendency to burn the patient. Dr. Stucky has mentioned the importance of proper illumination, and I merely wish to reiterate here that the best method for the investigation of these cases requires a special arc lamp.

One should pay particular attention to the color, thickness and translucency of the membrane of the olfactory fissure, the character and size of the posterior ends of the middle turbinates, and the plica septi.

In the suppurative cases, and in certain longstanding hyperplastic cases, one must always keep in mind the effect of the wiping action of the soft palate. In narrow pharynxes the wiping action of the soft palate is especially important as it can distribute secretion over the various areas mentioned above, and mislead one, especially if a thorough study of a case with repeated examinations is not made.

In suppurative types the various sinuses can be washed out, thus assisting very materially in the diagnosis. In hyperplastic types free from secretion, such help is not available, and we must, therefore, depend upon the symptomatology and the changes in the mucous membrane as I have outlined.

I shall not attempt in the short time permitted me to go into any great detail regarding the changes in the various types of hyperplastic post-ethmo-sphenoiditis. In their clinical manifestations we have two general types. The painful type and the so-called ocular type. The painful type gives us various kinds of sphenopalatine ganglion and Vidian neuralgias. When hyperplastic changes occur more anteriorily we then get the vacuum types of sinus disease. In the treatment of these cases one is often struck by the simplicity and the ease with which relief is obtained, and, on the contrary, one may find cases extremely persistent, which seem to baffle all efforts to obtain even a temporary relief for the patient. Fortunately, the latter type of case is the exception and not the rule. In the ocular type it is important to drain, especially the post-ethmoid and the upper portion of the sphenoid sinuses. In the painful types it is more important that the lower cells be ventilated and drained. One often finds variations in the anatomy of the post-ethmo-sphenoidal district in which the ethmoid extends out over the sphenoid. It is especially important in ocular cases that these cells be ventilated and drained, and in my opinion the Sluder operation is the one which is more likely to give a higher percentage of results than any other.

C. DeWeese Louisville, (closing): I want to thank the gentlemen for their discussions of my paper. There is one point I wish to mention here which was spoken of by Dr. J. A. Stucky, in his discussion, and that is on the subject of pain. This in many instances is a neuritis and can be relieved only by anesthetizing the nasal ganglion and may be cured by the injection of alcohol into this ganglion. Let us not be afraid to shrink down the tissues within the attic of the nose and make a thorough search for the cause of his pain and the very severe eye involvements.

CHICKEN BONE IN RECTUM. CASE REPORT.*

By Ben Carlos Frazier, Louisville.

About two months ago, I was called early one morning to see a woman who has been a patient of mine for many years. She had been operated upon several times for various reasons and in different cities. She was complaining of severe pain in her rectum, and as the case seemed in the nature of an emergency, I went to see her at once. This was about eight-thirty A. M.

She stated that her rectal pain had become almost unbearable, that she had gone to the toilet and suffered so intensely that she had to call her husband to assist her in returning to bed. I did not consider it necessary at that time to make a local investigation, and told her I could not understand why she should be having so much pain. I advised the application of local hot packs. No morphine was administered.

Two hours later I was asked to make another visit, as her pain had continued. I saw her again but still did not see any necessity for making a local examination. She had taken a hot bath and had kept a hot water bag applied, etc. As no relief from pain had resulted I then gave her one-quarter grain of morphine. This was about ten o'clock in the morning.

At twelve o'clock I telephoned to ascertain if any relief had been obtained, and was informed that her suffering had continued regardless of the morphine.

I went to see her again within an hour and made a local examination, which I probably should have done earlier. Opening the anal outlet with fingers I saw what appeared to be a splinter of wood in the rectum and so informed the patient. She said I must be mistaken, that she could not possibly have gotten a splinter in her rectum.

Further investigation revealed the foreign body to be the "Y" shaped bone from the breast of a chicken, one prong of the "Y" having become lodged in the rectal wall and this had caused her intense pain. The bone was easily removed, after which pain ceased. She said she had eaten chicken the night before but did not recall having swallowed the bone.

The case is rather unusual and I thought it might be worth reporting.

DIAGNOSIS AND TREATMENT OF DIPHTHERIA.*

By J. F. Dunn, Arlington.

Diphtheria causes a great deal of disturbance among our schools most every winter, and there seems to have been almost a pandemic this fall throughout the state. There are very few schools, if any, that have escaped this malady, and some have been hit pretty hard.

Why is it that we have more or less diphtheria every fall as the children from the various homes begin to assemble in the schoolrooms? And why does this disease cover a period of several weeks at a time when the incubation period is from two days to a week?

In my opinion there are three reasons why this is the case viz:

1. Many cases never consult a physician and hence are not recognized. 2. Errors in diagnosis. 3. Lifting the quarantine too soon.

Some cases are so mild that they do not attract the attention of the parents, and sometimes not even of the child, who goes right along to school day after day and spreads the disease promiscuously.

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*Read before the Louisville Medico-Chirurgical Society.

*Read before the Carlisle County Medical Society.

DIAGNOSIS

During our college career we were taught to diagnose diphtheria by the clinical symptoms. For instance, if a patient comes to us with a membrane on his tonsils, the border of which was red and inflamed, and this membrane was a dark gray or ash color and would bleed if disturbed, enlarged lymphatic glands, and fever, this was a case of diphtheria, otherwise it was something else. On the one hand this was safe, but on the other it was a dangerous procedure. There is no doubt that a case with the above symptoms is diphtheria, but on the other hand a very mild case may deviate considerably from this train of symptoms. It is in these mild cases that errors in diagnosis are made.

I am not going to spend much time on the diagnosis as there is only one crucial test whereby we can positively say whether or not we have a case of diphtheria and that is by the laboratory test. I have carefully looked over my records and they say that we have to differentiate it from ulcerative tonsillitis, peritonsillar abscess, and follicular tonsillitis, etc., but they finally all say that the microscope clears away the mysteries.

We have had an epidemic of something in our school this fall, resembling tonsillitis, in which there are deposits on the tonsils with some glandular swelling and very little fever. This seemed to be on the increase so I decided to make a thorough investigation. I took the next seven patients that came to my office, swabbed their throats and sent them to the laboratory. Now these seven patients were all practically identical. They had a small pseudo-membrane on the tonsil and little or no fever, slight glandular swelling and were able to attend school without any discomfort whatever, (however, I stopped them from school, as I do every form of sore throat).

These reports came back from the laboratory with three out of the seven showing diphtheria bacilli.

Our teachers tried to weed out all the sore throat fellows and send them to their family physician, some of whom came to us, while others went home and we got no trace of them. It is very probable that the majority of our cases were diphtheria in a mild form.

Fischer says that the differential diagnosis of all forms of sore throat with a false membrane depends wholly upon the presence or absence of the Klebs-Loeffler bacilli. That being the case, it is therefore our duty to quarantine every suspicious case and send a swab to the laboratory and not try to depend on the clinical symptoms alone for our diagnosis. In fact, I believe every case of tonsillitis should be quarantined any way, for in my opinion it is more contagious than diphtheria and often severe complications arise therefrom.

Our program committee assigned me the diagnosis and treatment of this disease, but as the prophylaxis is of equal importance, I believe it should not be passed unnoticed, and shall, therefore, incorporate it in this article.

Very little progress has been made in the treatment and management of diphtheria since the Klebs-Loeffler bacillus was discovered and the profession took up the use of antitoxin. For several years we have been giving anti-toxin to the sick (the dose of which has varied from time to time), and we have also given immunizing doses to the exposed and this was the extent of our knowledge. But it seems that at present we are about to take another great step in medical progress. The Schick test has been lately discovered, whereby we can tell who are immune and who are not, also the discovery of toxin-antitoxin that may be given to those who are not immune and, as is believed, will render them immune perhaps for the remainder of their lives.

Zingher and his staff have recently applied the Schick test to 52,000 school children in New York and those who gave a positive reaction were injected with toxin-antitoxin, the result of which will be awaited with much anxiety. They claim that the correct dosage and its permanency has not been fully worked out, but it is believed that immunity will last through childhood if not throughout life.

TREATMENT

The only treatment for diphtheria is, as all of us know, antitoxin. The only danger is in giving too small a dose. Our epidemiologists insist on large doses—10,000 to 20,000 units. In fact, I noticed an article from Dr. McCormack recently in which he says they have stopped making anything under 10,000 units except for immunizing purposes.

Very little other treatment is needed unless the symptoms demand it. The patient should be isolated and given light nutritious foods, plenty of water and fresh air.

Let us insist on not raising the quarantine too soon. Often the family is over anxious to get the flag down and we are prone to give ear to their pleadings. Dr. McCormack says that we should send swabs from the throat to the laboratory on the 12th and 13th days after the membrane has disappeared, and if these two reports are negative, let them out and fumigate, otherwise keep them in longer until the later reports become negative. We are not capable of looking into the throat and telling whether or not it is safe for the patient to return to school. Of course this is a great deal of trouble for a busy doctor, but it is the only safe and sure way to put down an epidemic.

In conclusion, let me say that we are very much handicapped down here in Carlisle for the following reasons:

1. We are too far from the laboratory. It takes about four or five days to get a report.

2. The fiscal court will not appropriate a sufficient sum whereby we might be able to put down these epidemics, and, consequently, we have no county board of health, as no one wants to bear the responsibility under these circumstances.

3. The doctors are too busy to go around and inspect all the schools of our county free of charge, once or twice a week, when the same fiscal court pays a farm agent $1,800.00 a year to go about over our county and inspect our dearly beloved hogs and calves.

We will never be able to handle these epidemics with any degree of satisfaction until we get the all-time health officer with the necessary laboratory equipment and the county nurse.

NEUROSYPHILIS. CASE REPORT*

By Samuel G. Dabney, Louisville.

The following case is mentioned briefly to illustrate a point which has been made many times before this society, i. e., the fact that patients developing neurosyphilis have been inadequately treated or have received no treatment whatever.

A man was sent to me a few weeks ago on account of a severe headache over the eyes. The first thing I noticed when looking at him was that he had semi-dilated pupils which did not contract to light. I immediately asked him if he had double vision at any time, to which he replied tha he had quite recently. I asked him if he had ever had syphilis and he said no. I then asked if he had any pain in his legs, and he said he had some numbness and also sharp, shooting pains occasionally.

To make a long story short, this man had the characteristic symptoms that we associate with the early stage of tabes. He had received no treatment whatever for syphilis. I have seen such cases over and over again. Wassermann was four-plus.

I report the case merely to illustrate what I believe to be very common among people improperly or insufficiently treated for syphilis.

On closer questioning the man admitted an old sore on the penis and perhaps a ''little touch of syphilis'' for which he was not treated.

BLOOD-PRESSURE*

By B. S. Rutherford, Bowling Green

The arterial system is supplied with circular muscular fibers which continue in their course to the smallest arterioles. They have the power of contraction and expansion and are presided over by two opposing sets of nerve fibres, the vaso-constrictors and the vaso-dilators which automatically increase or diminish the caliber of the arteries as the occasion may demand. During periods of activity any organ in the body requires more blood than it does when quiescent or less actively engaged; the stomach, for instance, during digestion. At such periods the vaso-dilators come into play and exert their dilating influence upon the blood vessels, thereby increasing their caliber and allowing the blood to flow more freely to the organs. When the digestion is completed and the activity is lessened the vaso-constrictors come into play and diminish the caliber of the blood vessels until the organ receives its usual amount. The vaso-constrictors are the most important as they are always engaged in maintaining normal tones. There is always a blood pressure in the arteries, without it the heart could not propel the blood through the system unaided by normal tonus which is maintained by the contractility of the arterial walls against periferal resistance. Without arterial tonus the blood would flow through the arteries in an intermitent instead of a continuous stream. The heart would have to supply all the energy to propel the blood through the system; a task which it would be incapable of performing and would soon wear itself out in its ineffectual efforts to do so.

In order that we study blood-pressure intelligently from a pathological point of view, it is very essential that we be familiar with the physiological aspect of the condition with all of its phases, and their significance. To determine the degree of blood-pressure, instruments of various makes have been devised which are known as ''sphygmomanometers.'' The use of which gives us an accurate understanding of these conditions. A standard has been established which is generally considered to be correct. A man whose age is twenty should have a blood pressure of 120. A few degrees above or below this point would not indicate pathology, and for each year above that age one-half a degree is added. For instance, we will take a man of forty. The difference between the ages of the man twenty and forty is twenty. Half of twenty is ten; ten added to 120 would be 130; hence the man of forty should have a systolic blood-pressure of 130, or there about. A considerable departure from which, either above or below, would indicate pathology.

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*Read before the Louisville Medico-Chirurgical Society.

*Read before the Warren County Medical Society.

The auscultatory method is the one almost universally used to determine blood-pressure. To do this we apply the cuff of the instrument, which should be about six inches broad, between the elbow and shoulder. With stethescope applied to the brachial artery just above its bifurcation we pump air into the rubber bag that encircles the arm. As the mercury rises and the arm becomes constricted we discover a thumping sound. Presently, as the constriction becomes greater, the thumping ceases; at which point the pulse becomes obliterated at the wrist. We then gradually allow the air to escape until the thumping appears again. At this point the height of the mercury registers the systolic pressure.

To obtain the diastolic pressure, we allow the mercury to gradually descend by releasing the air pressure until the thumping stops. It is at this point that the mercury column, as is shown by figures, indicates the diastolic pressure. The pulse pressure is the difference between the systolic and the diastolic pressure. The sum of the systolic and the diastolic pressures divided by two represents the mean pressure. The systolic pressure of a blood vessel represents the maximum force exerted within it during ventricular systole.

Diastolic pressure represents the degree of pressure within the vessel during diastole. Like systolic pressure it varies within certain limits in health and widely in pathologic states. In life insurance examinations a variation of 17 degrees above or below the established standard is considered not to exceed normal. Thus, a man of twenty with a reading of over 137 or under 103 would be considered beyond the limits of physiological variation and hence an undesirable risk.

The blood-pressure is of vast importance in assisting us in early diagnosis of nephritis, since the scanty albumin and a few casts are not conclusive evidence of the disease. As these elements may come from a number of transitory and comparatively unimportant causes. But with a persistent blood-pressure of 150 or over, in a man below middle age with albumin and casts, the evidence would be conclusive. A persistently low blood-pressure, below permissible variation, although other symptoms might be absent, is suggestive of incipient tuberculosis. The high blood-pressure, with which we have mostly to contend, is encountered in the declining years of life. When the machinery of life, frequently because of rough usage, begins to break down and needs repair. At which time the arteries become hardened and lose some of their elasticity. Normal tonus is impaired, and, as the arteries continue to harden, they lose more and more their power of contraction and expansion. The heart, being deprived of a part of its auxiliary force in propelling the blood through the system, is called upon to do a greater amount of work. It not only has to supply its usual amount of energy, but plus the amount lost by the arteries because of their diseased condition. A patient never lives long enough to lose all the power of expansion and contraction in his arterial walls, for in this case all tonus would be abolished: a condition which would be incompatible to life. As a proof of this, I have never treated a patient for this trouble who would not respond to the nitrites. Though their blood-pressure was as high as 250 and their arteries tortuous and calloused. As a consequence of the increased action of the heart in overcoming periferal resistance, we have a rising blood-pressure and a compensatory hypertrophy of the heart, both of which are physiological. For without the increased size and strength the heart could not meet this extra demand; and without the high blood-pressure the blood could not be passed through the capillaries. As the condition of the arteries grows worse the demand on the heart becomes greater. There ultimately comes a time in the history of these cases when the heart, by overwork during a period of perhaps years, can no longer meet the demand. Compensation ceases to supply additional energy, the reserve is all gone, dilatation ensues. We may have a murmur of relative insufficiency with regurgitation of blood pass perfectly normal valves because they are no longer able to close the orifices, enlarged by dilatation in the process of decompensation. Long before this condition is reached, however, the patient has developed an interstitial nephritis.

We usually find on examination of the urine, a low specific gravity with or without casts. It is often impossible to tell which is the primary affection, the kidneys or sclerosis of the blood vessels. Either is conducive to the production of the other and they go hand in hand, forming a clinical picture of the cardio-vascular renal disease.

Since high blood-pressure is the effort of the heart to pass the blood through unyielding arteries and capillaries to its final destination in maintaining nutrition, it is claimed that a man of middle life, or above, with low specific gravity of urine and hardened arteries, should not have his blood pressure reduced below 160 or 165, and that we should be very careful in the administration of the nitrites. That by so doing we defeat the purpose that nature is endeavoring to accomplish. This, I believe to be true, but in my opinion the nitrites have their place in the treatment of these conditions, and when indicated they should not be withheld. Like digitalis in heart disease, should only be given when the occasion demands. The fact that an individual has valvular lesion does not mean that he should be immediately given digitalis. In fact, he may never need it, and it should only be given when he reaches or approaches the stage of decompensation, at which time it becomes a life-saving agent and may prolong his life for years. The same is true of the nitrites in the treatment of high blood-pressure. We should endeavor to keep it within safe limits by proper diet and rest. Insisting that the patient take life easy and not indulge in the excesses of life in any form. Which, in many instances, has been conducive to the development of this condition.

An individual with a blood-pressure of 200 or 220 or 240, which will not yield to the ordinary measures of reduction—what are we going to do? The heart, to maintain a pressure of this height, is compelled to put forth an enormous amount of energy. A task which it cannot perform indefinitely without doing irreparable injury to its musculature. It is in these conditions that the nitrites act with gratifying results. By dilating the blood vessels we open up the flood gates, as it were, and give the blood a free transit through their channels. By so doing we obviate the necessity of a high blood-pressure by lessening periferal resistence. It is true that the effect of nitro-glycerine is transient and perhaps will not last longer than thirty minutes. But thirty minutes of partial rest three or four times a day to a heart that has been overworked for years and now laboring under an enormous strain will greatly assist in regaining some of its lost reserve and putting it on a more substantial basis for future work. When I see a patient in this condition, with perhaps attacks of aphagia and other danger signals, I endeavor at once to reduce his blood-pressure the quickest and most effectual way. I put him on one one-hundredth grain of nitro-glycerine to be given every two or three hours, according to the emergency of the case. We can nearly always, in a few minutes, reduce it from twenty to forty degrees. After he has been on this treatment for a few days, during which time I enjoin rest and restricted diet, I put him on the sodium nitrite in three or three and one-half grain doses to be continued two or three weeks. This is followed with the iodide of potash, in small doses, for three or four weeks. The subsequent treatment would depend on his condition. It might be necessary to resort to the nitrites again or it might be weeks or months before he would need them. Bearing in mind that when the disease has reached this stage where danger signals have manifested themselves, it is unsafe to allow an exceedingly high blood-pressure to continue.

By proper care and close watching we can tide them over these periods of exacerbation, though it may seem the end is near, and enable them to live for months or years.

RADIATION IN PELVIC DISEASE*

By D. Y. Keith, Louisville.

In speaking to you of radiation of the female pelvis we would like first to impress on you the importance of a correct diagnosis. To us one of the greatest factors in making a diagnosis is an accurate history. Another is palpation with the educated finger and the other is by inspection. By inspection we mean a good light and in looking at the cervix to have the patient in the knee-chest position and the use of daylight, preferably sunlight.

There is no field in medicine in which so accurate a diagnosis should be made as in the female pelvis before the use of radium or x-ray; for the results obtained when radiation is properly applied, will depend entirely on your diagnosis. We believe it would be well to teach your patients to come to you with any type of menstrual disturbance when they are above thirty years of age, then do not be content with anything except a thorough examination and if you are not satisfied have them report to you in a few weeks' time. We believe if you will bear this in mind you will get hearty cooperation from your patients.

If any of you will take the time to ask your patients, particularly those suffering with carcinoma of the cervix, why they delayed coming to you you will find the following answers are the most frequent. 1. "Fear of an operation." 2. "Did not think it was serious." 3. "Fear of it being serious and requiring an operation that would not be successful or would not give permanent relief." It is our experience that patients are coming earlier than they did formerly simply for the reason that a great many do not expect to be operated on as they are learning that radiation is far easier with less suffering and with much better results than they have obtained from surgery. The laity is alert upon the question of radium and cancer and you will find many in the future that will insist upon knowing if radium or the roentgen-ray will prove of service in their particular case. We feel sure all of you are competent to make an accurate diagnosis in the majority of pelvic affections and should know the indications as well as the contra-indications for the use of radiation. (Radium and X-Ray.)

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*Read before the Bell County Medical Society.

The indications are: 1. Uncomplicated fibroids. 2. Large fibroids in which the cardio-renal system prevents surgical interference; many of these cases are symptomatically cured and many gynecologists are extending the use of radium to all sizes of fibroids except the pedunculated or those with tubo-ovarian infections as a complication. 3. Cancer of the cervix uteri and vaginal wall. 4. Essential hemorrhage in patients approaching the climacteric or above the age of thirty. 5. Persistent hemorrhage in the adolescent, here the results are usually brilliant as the bleeding can be stopped without sterilization or cessation of menstruation.

Contra-indications to radio-therapy are: 1. Fibroids located in the cervix, broad ligament, and submucus and subserous fibroids where they have a definite pedicle. 2. Degenerating and calcified fibroids. 3. Ovarian cysts and pyosalpinx are positive contra-indications, even though they have been quiescent for a long period an acute flare-up is often seen soon after the application of radium. These conditions should be considered complications of uterine fibroids. 4. Age: Preservation of menstruation and the desire to have children makes myomectomy preferable to radiation though there have been several cases reported of pregnancy having occurred after the use of radium.

We are hoping and believe the technic in dosage may become so accurate that small fibroids may be attacked successfully without the loss of menstruation and the patient be able to bear children.

In constrasting the use of radium and the roentgen-ray it is much easier upon the patient to give an intra-uterine application of radium than two or three series of deep roentgen-ray. As a rule there is no nausea or vomiting, and very little discomfort from the radium application while the ones subjected to deep roentgen-ray therapy usually suffer from nausea and vomiting in the second or third series.

The nausea evidently comes from the odor of the tube while excited as we have had a few cases that had lost the sense of smell in which no nausea was experienced though they had several applications of the x-ray.

Technic: Our technic has changed very little in the past four years in the treatment of non-malignant uterine hemorrhage as we are today using four m. m. of aluminum for filtration where in our earlier work we used three m. m. There has been some change in the portals of entry as we formerly used four anteriorly and four posteriorly while at present we are only using two and in some of the smaller patients only one area anteriorly and one posteriorly with an increase in the time and skin distance so a larger area is covered. A skin distance of ten to twelve inches will ray the entire pelvis in the majority of patients of average size.

In the malignancies of the pelvis we are using more filtration and increasing the time. Filters of from six to ten m. m. of aluminum or one-half m. m. of pure copper are at present used, the time factor being increased to from thirty to fifty minutes for each portal of entry. At least three series are given at intervals of three to four weeks or as early as the skin will permit.

History: The value of a well taken history in a malignant cervix is invaluable. We do not recall but a very few cases that have come to us for relief that the history did not give convincing evidence of a malignancy. In our experience the symptoms occur as follows: discharge either serous or mucus following the normal menstruation, a few days' extension of the menstrual flow, following with inter-menstrual hemorrhage for a few days. Then comes the persistent or profuse hemorrhage, sometimes both, though a profuse hemorrhage is rarely seen early in the disease. In the cauliflower type of tumor the rubbing of the tumor against the vaginal walls will usually cause early hemorrhage, while in the adeno-carcinoma an extension into the lymph nodes of the pelvis is quite often present before symptoms appear.

Closely following the above symptoms is pain which gradually increases in severity until it is uncontrollable even with opiates. Any of you that have seen cases in which radium or x-ray have been used will appreciate its value in reducing the pain, with usually complete cessation of bleeding and foul smelling discharge that is so very objectionable to both patient and friends.

We believe the following case will illustrate the value of histories as well as the relief to be obtained by radium even in the late cases.

Case 1. Mrs. B. L. age 34. Married. Has seven children living. No miscarriages. First menstruation at age of 12, duration 8 days, very free with three days of pre-menstrual pain. Youngest child 8 years of age. No history of tumors in family.

Present History: Four years ago began with a slight vaginal discharge much worse after each menstruation, but persistent. The discharge was present nearly two years before the appearance of inter-menstrual hemorrhage, which usually lasted only two or three days and never profuse.

The inter-menstrual hemorrhage lasted one year when she suffered a profuse hemorrhage lasting for three weeks which was uncontrolable unless she remained in bed. Since this time, 8 months, the hemorrhage has been constant though the patient remained in bed. Pain was present only two months. She has been confined to bed for the past eight months, her only symptoms being hemorrhage, pain of only two months' duration, loss of weight, marked cachexia.

She was first seen by us five months ago, and on vaginal examination, the cervix was the size of a large lemon and practically destroyed except the vaginal mucous membrane. The uterus was fixed with extension into each broad ligament. She was given five applications of radium as follows:

50 mgs. into the cervix.

50 mgs. to lower half of cervix.

4 needles of 12½ mgs. each plunged into the cervix.

50 mgs. applied to each vaginal fornix to ray each broad ligament. A total of 3875 mg. hrs. being given over a period of two weeks. Two series of deep roentgen therapy were applied to the pelvis using anterior and posterior ports of entry.

She reported to us at the end of two months very much improved in cachexia with cessation of bleeding and discharge and she has had no pain for the past three weeks. She has resumed her household duties and a letter a few days ago saying she was away on a visit and feeling good for four months after her first treatment.

Such is the marked improvement in the late cases of this type. We feel had she been seen even at the beginning of her bleeding (two years after her first symptoms) she could have been cured. Should we obtain a cure for two or three years in her case we shall feel repaid for our efforts.

We know you appreciate the fact that at present the treatment of uterine malignancy is palliative, radium being the method of choice with few exceptions.

Such teachings to the profession as well as the public will greatly increase our results as the cases will come to us much earlier and the fear which misapplied surgery has produced will be in a degree overcome. If all of us will make an effort to teach the public that any menstrual disturbance requires an immediate examination and that many are amenable to treatment which requires no surgery, we may expect an increase in the number of cases in the early stages. May we not expect much better results if we can get a greater number early in the disease?

Case 2. Large Multiple Uterine Fibroids. Age 43. Married, no children; was operated upon fourteen years ago and told she had a bicornuate uterus and was pregnant in one side of the uterus. After a few months of pelvic growth she began to reduce in size until about the size of a three months' pregnancy. There has been no further increase or decrease in size until about two years ago when she first noticed she was getting larger. This increase was slow until about six months ago since which time she has had a very rapid increase in size until at present she is much larger than a full term pregnant woman. There has been an increase in the amount of the menstrual flow, also the number of days of menstruation.

Symptoms: Marked discomfort from enormous increase in size, marked dyspnea, oedema of feet and legs, cardiac oppression, nearly continuous bloody and mucous uterine flow free from odor.

Examination: A very large, well developed woman, presenting enormous enlargement of the abdomen, with brownish-yellow splotches on the face and neck. Chest: Lung fields negative. Heart very rapid on the least exertion with a harsh, blowing murmur heard over the entire chest, loudest at the right of the sternum and fifth rib anteriorly. Most of the internists who listened to this heart thought it was a tricuspid lesion.

Fluoroscopic examination negative except an increase in the size of the cardiac shadow. Probably a natural hypertrophy from overwork.

Diagnosis: Multiple fibroids probably undergoing malignant change in evidence of the rapid increase in size.

Treatment: Several surgeons saw her and considered it an inoperable condition. The only hope was by radiation. The greatest objection to radium was the possibility of causing strangulation. Particularly was this true of the one beneath the left costal margin, as we were quite sure it had a very long pedicle.

Upon the urgent advice of Dr. E. C. Samuels of New Orleans, whose experience with radium was much more extensive than ours, we began treatment, first by roentgen-ray, using one area over each large tumor and a few days later applying radium by the vaginal route, as we were unable to find the cervix.

Roentgen- therapy was instituted November 18, 1920. The first radium was given on November 30, 1920, the second on December 15, both applications being made in the vagina.

When she returned on January 12, 1921, all the tumors of the abdomen were freely movable, the patient having experienced great relief from oedema of the feet and shortness of breath. Many of the yellow splotches upon the neck and face had completely disappeared. No menstrual flow had been present since about December 10th.

An application of radium was then made intra-uterine, using two positions. At this time we used a radium applicator designed for the male bladder. The entire instrument, which was thirteen and a half inches in length, was introduced, into the uterus for fifteen hours, withdrawing the instrument two inches at the end of six hours.

On March 2, 1921, another examination revealed marked improvement in feeling with great reduction in the waist measurements and the size of the tumors. All the tumors were freely movable and were considered operable by all who saw her. The uterine souffle and cardiac murmer were both much reduced. The only detectable heart murmur at this time was an aortic obstructive which was not very harsh.

She was seen and examined again on June 4, 1921, by one of us (D. Y. K.) and only a double tumor with a distinct furrow between was present entirely within the pelvis and about the size of a large grape fruit.

In the early part of July, Dr. C. G. Forsee saw her at her home and says the double type of pelvic tumor was present and not larger than a small orange.

A very grateful letter was received from her August 15, 1921, in which she states she feels well and does all her housework, and has walked on several occasions as far as two miles, and suffers no shortness of breath or other inconvenience. What other means of therapy at our command could have been of any service to this patient? She resumed her household duties within five weeks after treatment was instituted. She has had no inconvenience except "hot flashes," which she would have experienced at her natural menopause. They have been controlled by ovarian therapy. If a complete regression of a mass of tumors of this size can be obtained may we not expect as much of any simple fibroid?

On September 3, 1921, we had a report from Dr. M. Phelps of Leitchfield, Ky., saying she is in perfect health, doing all her housework.

We will not burden you with further case report but want you to know we believe the newer therapy by radium and roentgen-ray to malignancy of the female pelvis is the easier, safer and best treatment we have today to offer your patients.

In uterine fibroids of the recognized type for radium therapy, there is no mortality: it is much easier, with morbidity and will soon become the method of choice to offer.

In essential hemorrhage of the uterus, we have treated more than eighty cases with extreme satisfaction to both patient and the physician or surgeon who has referred the case. Are we not all trying to give every patient the best there is to offer from the profession?

MEDICAL SCIENCE AND MEDICAL SOCIETIES*

By Edward Barr, Owensboro.

In complying with the request of Dr. J. J. Rodman, secretary of the Daviess County Medical Association, to furnish a paper for this meeting, I do not expect to present anything new or even to entertain, since you are daily in the habit of reading articles from more gifted pens, published in the numerous medical journals in which our country abounds.

That the importance of medical societies, yes their absolute necessity, has been felt and recognized from the earliest dawn of medicine, there can be no question. If the physician of today is to keep abreast of medical learning he must belong to medical societies and be a regular attendant upon their meetings. I am sure every member of this society has received great benefits by attending its quarterly meetings. It has always stood for the very best in medical morals, the highest in ideals.

Medical science has not won its way by means of mere empty forms or ceremonies. Its right to maintain its high rank among civilized and cultured people rests upon a more enduring foundation, while its marvelous achievements command the confidence of mankind; its antiquity challenges the respect of its critics, for long before Abraham and Lot had divided their flocks on the hills of Judea, the Great Physician had laid the foundation of medical science so broad and so deep that it was not merely destined to survive but to shed its steady light through all coming time.

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*Read before the Daviess County Medical Society.

Forward and backward upon every page of the world's history that records the ills of mankind, or the physical afflictions of the human race. Those who would learn the achievements of our profession and the record of those who worthily practice the lofty science that heals the sick, makes the lame to walk, the blind to see and sends its devotees with willing steps on missions of mercy and charity on the journey which leads along the stormy paths of contagion or through the precincts of deadly pestilences, must appeal, not to fiction, but to the path of history. It is said that science and religion are the keepers of Liberty. Can it not be added that the science of medicine is the sole keeper of the public health, and as such, adds more to a nation's material welfare and physical development than any other of the learned professions.

Whatever the weight of such an argument on such a subject may be, no one with even a superficial knowledge of the history of medical science will deny that it has not only kept pace with every other science, but has outstripped them all.

The opening days of the nineteenth century witnessed business interests everywhere combining—men of capital, laborers of every class were organizing and pooling their interests. This contagion seized upon the doctors in the early part of the twentieth century and a movement was started under the guiding hand of our own J. N. McCormack, that soon resulted in a close organization of the entire medical profession of the United States into one harmonious whole. This has been done not for selfish gain for the physicians, but for the elevation of the science of medicine wherever practiced, and for the extension of medical knowledge and the advancement of medical science; for the elevation of the standard of medical education; for the promotion of friendly intercourse among physicians, as well as to the enlightenment and direction of the public in regard to the great problems of state medicine, so that the profession shall become more useful to the public in the prevention and cure of disease. Where is there on earth an organization with a higher or more lofty declaration of principles? Carrying out the high ideals and the altruisms that have always characterized the medical profession, has already caused to be installed in our midst an all time health officer, with whom we are all glad to be associated, who is devoting his entire time to the suppression of epidemics and the prevention of disease, which work must add happiness to human life and value to our county. Happily for our profession, and those who need the physician's skill, its members have always been willing to work and never clamor for popular applause. They have preferred simply to do their duty, trusting results to the just verdict of those who have been the recipients of the untiring work which had made the medical profession one of the most honorable and useful among men.

If medicine is losing caste—and it is suggested by some that it is—it must be from the very fact that there is more of bigotry, more of the spirit of intolerance and persecution in the medical profession today than among any other class of like intelligence. We should therefore lay aside all selfishness, bitterness, exclusiveness and everything that would hinder us in our work of human benefaction, and with one heart and one faith in the virtue and honor of our profession, renew our firm resolves to consecrate our best efforts and energies to humane and scientific medicine.

THE DIAGNOSIS OF PERIPHERAL NERVE INJURIES WITH A PRELIMINARY REPORT ON THE COURSE OF RECOVERY AND END RESULTS*

By C. C. Coleman, Richmond, Virginia

The purpose of this paper is to present some practical observations in the diagnosis of peripheral nerve injuries, and to make a brief report upon the early end results of surgical treatment. This material was collected for the most part in the Army Reconstruction Hospitals and is based upon the study of more than 700 patients. In this series about 150 nerve operations have been performed by the writer. With slight modifications, the knowledge of nerve injury and regeneration thus acquired can be applied to similar injuries occurring in industrial accidents with a great lowering of disability and a corresponding rise of economic gain.

Nerve injuries are by no means rare, even in the ordinary accidents of civil life, but the discovery of a nerve lesion in an injury of the extremity requires a painstaking and systematic examination which should be made at the earliest possible opportunity. In a nerve injury associated with a compound fracture for example, it sometimes happens that the nerve lesion is not recognized until the splints are removed and the disabling secondary effects of interruption of the nerve become plainly evident. The early diagnosis of a nerve lesion is an important factor both in the prognosis and treatment of the disabled limb and has a direct bearing upon the end results. The local wound conditions may not permit immediate surgical treatment of the injured nerve but even in such cases certain valuable aids to later operations can be promptly utilized. Massage, proper splinting, and electrotherapy are of great assistance in preventing fibrosis, contractures and other crippling effects of nerve injury, which once established may cause a permanent disability, even though the nerve should subsequently recover complete function. Correct diagnosis of peripheral nerve injuries is predicated upon a thorough knowledge of the regional anatomy. With this knowledge it is possible to utilize the simpler tests for such injuries and to place the examination upon a practical basis.

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*Read before the Kentucky State Medical Association, Lexington, September 27, 28, 29, 30, 1920.

In nerve injuries due to projectiles it is usually not possible to determine at early examination whether the nerve is completely divided and requires suture or whether there is merely a physiologic interruption of the nerve which may recover spontaneously. Patients wounded in an extremity by a projectile frequently have an immediate paralysis of the entire limb followed by complete recovery in the course of a few weeks. Obviously, the amount of gross structural damage to the nerve cord in such cases must be slight and the loss of nerve function may be due to forcible vibration of the nerve tissue with perhaps hemorrhagic extravasation between the neuraxes. The method of infliction of the wound, therefore, is of great importance in determining the type of nerve lesion. A stab wound followed by immediate paralysis of a given nerve has caused partial or complete division of the nerve, and this type of injury should present no difficulties of diagnosis.

In nerve injuries repeated examinations are often necessary to determine the type of lesion and whether or not regeneration of the nerve is proceeding satisfactorily.

The cardinal signs of nerve injury are motor paralysis, sensory loss, atrophy, and a deviation from the normal electrical reactions. While other signs of lesser importance are usually present, we assign to those here given the greatest value in both diagnosis and prognosis of the injury. Great care is necessary in the examination of motor paralysis. Considerable difficulty may arise from the unexpected appearance of voluntary motion in segments of the limb supplied by the nerve in question. Frequently the movement normally executed by the paralyzed muscles is effectively replaced by the action of supplementary muscles supplied by an uninjured nerve. Substitutionary function by these supplementary muscles may be responsible for the movement, and under such conditions the function of the normal neuromuscular mechanism may be closely imitated. Substitutionary function, especially in flexion of the forearm, wrists and fingers is frequently observed and unless great care is exercised in determining which muscles are actually producing the movement, the examiner may conclude either that a nerve lesion is not present or if present is of slight consequence.

The study of voluntary movement is largely the interpretation of muscle function in the segments of the limb under observation, and should be so conducted as to eliminate the action of muscles whose nerve supply is not involved. As an instance of substitutionary muscle function may be mentioned the flexion of the elbow by the supinator after paralysis of the biceps and brachial anticus. Flexion of the wrists may likewise be accomplished by the muscles supplied by the musculospiral. The action of the ulnar hand muscles are often accurately imitated by the exteriors of the fingers. Deceptive movements after division of the nerves are often observed as a result of the shortening of paralyzed tendons due to fibrosis. Wrist drop is considered the characteristic feature of musculospiral palsy. Nevertheless, some patients with section of this nerve are able to elevate the wrist by forcible flexion of the fingers. Substitutionary movements while found in both the upper and lower extremities are more numerous in the former because of the greater motility and the overlapping supply of four large nerves, three of which converge to the hand. Tests for voluntary movement should be made with the limb in such position as to abolish the effect of gravity, otherwise great muscular weakness of a partial or recovering nerve lesion might be regarded as a complete paralysis.

The sensory examination is laborious and is of less value than the examination of muscle action. It requires much patience and precision to determine the amount and character of sensory loss after division of mixed nerve. Extensive observation with standardized apparatus has disproved formerly accepted ideas of the response to various forms of sensory stimuli after nerve section. The area of loss of sensation to tactile stimuli and the zone of pain loss are equal if carefully tested and the variations given by Head and others are probably artefacts, the result of the examiner's method. Overlap from adjacent healthy nerves must be kept in mind to avoid error in the interpretation of the sensory disturbance. Spontaneous pain in the distribution of the injured nerve occurs in various types of lesions and gives no positive information as to the severity of the nerve injury. Even after complete section the patient may complain of violent pain in the distribution of the divided nerve. As a rule, however, a serious nerve injury causes little pain. The return of sensation as a result of nerve regeneration may be delayed until after voluntary movement is well recovered, and in some cases of this series the patient still complains of anesthesia, although motor recovery is practically complete.

Atrophy of muscles will often enable the observer to make a prompt diagnosis of nerve lesion by inspection alone. This atrophy is perhaps most typical in cases of median and ulnar injury, and is usually quite rapid after complete anatomical interruption of the nerve. It may be marked even in slight irritative lesions, and therefore cannot be relied upon to indicate the severity of the lesion. It may persist to an extreme degree even after motor recovery.

The electrical reactions which are usually tested as a part of the minimum examination of an injured nerve are not often present in the way described as typical. Faradic stimulation will differentiate a functional paralysis from one due to actual injury to the nerve, and this perhaps is the most practical field of usefulness for the employment of electricity. Another procedure of value is the direct faradic stimulation of a badly damaged nerve after surgical exposure to determine whether or not the physiologic interruption is complete as well as to determine the type of operative procedure best suited to promote regeneration. The classical reaction of degeneration is rarely found, although some of its components are present after severe injury, and may help complete the diagnosis. We have relied on the slow, wavy contraction with changed polar relations as the most constant finding of galvanism in serious injuries of the nerve. Electrical examinations should be routinely done but they are of less value than the simpler tests.

Many of the patients of this series had received coincident injuries to the main arteries of the extremities in additon to the nerve lesions. The ischemia sometimes produced by division of the principal artery of the limb adds confusion to the clinical picture of the nerve lesion, and seriously interferes with regeneration of the nerve, and the subsequent recovery of muscle function. The deformity and trophic phenomena caused by ischemia alone may simulate closely a nerve injury, but differentiation is usually possible. It does not follow that division and ligation of the principal artery usually produces ischemic symptoms. On the contrary a marked degree of ischemia was not often seen even when the axillary or brachial artery was divided. The greatest contractures from fibrosis of the muscles and joints were found in lesions of the branchial plexus and of the median and ulnar nerves. Wounds of these nerves are more likely to be associated with injury of the large blood vessels, and the exaggerated trophic disturbance in such cases is partly vascular in origin. Musculospiral injuries showed a much less degree of fibrosis.

Nerve lesions caused by projectiles and lacerated, contused wounds are often accompanied by direct injury to the bone, muscles, and tendons. Careful examination and study is necessary to dissociate these lesions and assign to each its proper share of responsibility for the loss of function.

It was the practice in dealing with the nerve injuries of the war to wait at least three months after wound healing before operating upon the nerve. I have felt for some time that a severe nerve injury, however produced, should in many cases be explored at once for the purpose of better disinfection and to apply immediate suture to the nerve should it be divided. If the nerve is not severed even though physiologic interruption be complete, naturally no operations upon the nerve itself should be done. It is true that a considerable percentage of nerves which at first are totally paralyzed will regain their function without operation, but in view of the impossibility of early determination of the severity of the lesion and the importance of prompt suture of divided nerves, the slight operation of exploration for the purpose of getting positive information of the wounded nerve and a better disinfection of the wound is a logical procedure. If after simple exploration, the nerve fails to recover its function because of the fibrous tissue within its sheath, reaction and suture can be done at a second operation. In the presence of infection it would be unwise to operate.

Three types of operation are done for peripheral nerve injuries: 1. neurosis, 2. suture, and 3. transplantation. Neurolysis, or the freeing of nerves from scar tissue or callus often results in a quick return of function, but this procedure is not helpful when the neuraxes of the nerve cord are blocked by scar tissue within the nerve trunk itself. In my cases it has frequently been necessary after failure of a primary neurosis to reoperate and do a direct suture.

The cardinal points in the technic of nerve suture are careful dissection, gentle handling, protection of the nerve from drying, prevention of torsion of the nerve, a dry field, removal of all scar tissue from the nerve ends, and approximation without tension. There is no advantage in protecting the sutured nerve by fascia, Cargile membrane or other foreign body. They probably increase the amount of scar tissue and obstruct regeneration.

It is rarely necessary to resort to the doubtful procedure of transplantation to overcome nerve defects. By shifting the nerve to a more direct course and proper position of the segment of the limb it is nearly always possible to perform a direct suture without hurtful tension.

There were no deaths in the series and only two wound infections, both of which were superficial and mild. In gunshot injuries with retained foreign bodies infections develop spontaneously with about the same frequency as after operation. It it not possible at this time to fully report the end results of operation. The patients have been followed up with great difficulty, and numerous letters to many of them have failed to procure information as to their present condition.

About one-third of the cases personally operated upon have either been examined by us recently or have reported their condition by letter. In a few cases the results of examinations by neurologists in other sections of the country have been supplied. Cases on which no reports could be obtained about July 1, 1920, were omitted from the present report, although from previous letters and examination it is known that improvement is under way in many of these patients.

From the data thus collected we are able to give this preliminary report on fifty patients who on July 1, 1920, had been operated upon more than twelve months previously. Of the fifty patients there are thirty-seven sutures and thirteen neurolyses. The number of sutured cases is nearly evenly divided among six nerves, the median, ulnar, musculospiral, sciatic, external popliteal, and the internal popliteal. Cases that had neurolyses include the above mentioned nerves except the sciatic trunk. The figures show that of all of the nerve sutures the musculospiral heads the list in return of motor function, the internal popliteal second; the external popliteal, third; sciatic, fourth; the median, fifth, and the ulnar last.

A number of interesting observations can be made upon the fifty cases of this early end results series. Considering the rate of returning function of the individual nerve, it is a well known fact that a purely motor nerve will regain its function more rapidly than a mixed nerve, and bearing directly upon this observation the musculospiral, which is almost exclusively a motor nerve, heads the list in the percentage and rate of recovery. The rapidity and completeness of recovery of the facial after an anastomosis may be mentioned as another example. In this series the ulnar is the tardiest of all in its regeneration. Several facts may be mentioned in an effort to explain the delayed recovery after ulnar suture. Most of the ulnar cases of the series reported had received wounds of the forearm resulting usually in a long defect. Transposition of the nerve from its bed behind the internal condyle to an anterior plane was necessary to bridge the defect. Some injury to the blood supply of the nerve was inevitable from this dissection. Whether or not this interference with the nutrition of the nerve results in permanent damage remains to be seen from future reports. At least one case with ulnar nerve suture above the elbow without transposition of the nerve has reported almost complete recovery both in motor function and sensory restoration. Another factor of importance in estimating the improvement after low ulnar suture is the slight disability which had existed prior to suture, even when the nerve was completely divided. Many of these patients had almost complete substitution of motor function through the long extensors and flexors and complained only of sensory disturbance in the distribution of the nerve. In such cases the motor evidence of ulnar regeneration after suture would not be so apparent and with the restoration of sensory function a careful neurological examination would be necessary to determine the amount of motor recovery.

In low ulnar cases which do not have the substitution of motor function considerable time would be necessary for the re-education of the intrinsic hand muscles after regeneration, and this may be a factor in the patient's estimation of his disability. It does not seem probable that under similar conditions the ulnar nerve regenerates less perfectly than the median.

The sciatic cases have uniformly shown improvement in the internal popliteal constituent first. It is interesting to mention that anesthesia persisted in some patients even after well advanced motor recovery. In recovery musculospiral injuries extension of the thumb was absent in two, indicating that this movement is probably the last to appear. In the external popliteal cases extension of the toes occurs last. The motor return in the sutured median cases first appears as flexion of the index fingers, and recovery of the thumb muscles appears last.

In analyzing the reports from the ex-patients, one is struck by the almost constant occurrence of paresthesia in the distribution of the sutured nerve as a forerunner of returning sensation. This paresthesia is spontaneous and in some instances amounted to actual pain. Only one patient of the fifty heard from reported ulceration.

A further report on end results of the entire series will be made during the coming year.

DISCUSSION

Joseph G. Gaither, Hopkinsville: The paper to which you have listened is one which must necessarily be of considerable interest to all of you, because this work hase been done largely for those of our boys who were injured in France. It is therefore a source of considerable relief to know that our government is undertaking this work in a careful, painstaking fashion.

In the early part of Dr. Coleman's paper he spoke of the necessity of careful examination of injuries of the extremity at the time they were sustained or the recognition of nerve trauma, and it occurred to me that some of you may have forgotten the rough and ready method taught in your days of anatomy for recognizing paralysis, and I will try to recall them to you briefly.

Let us take paralysis of the hand. If you will remember, the ulnar nerve supplies two muscles of the thumb. Most of the muscles of thumb are supplied by the median nerve, but the ulnar supplies two of them, and if your patient who has just had a fall or a fracture of the arm comes to you, and it is possible for that patient to put the little finger and thumb together, you may reasonably assume that the ulnar nerve is intact. If you wish to investigate the condition of the median nerve, have your patient try to make a claw hand, utilizing both flexors of the arm you will see the median uninjured.

Musculospiral paralysis and wrist drop are familiar to you all. The musculo-cutaneous can be tested by inability to flex the forearm by the action of the biceps or brachialis anticus. The circumflex injury is shown by the paralysis of deltoid muscle.

I happened to have had one case recently of incarceration of the ulnar nerve; operation too recently done to report upon the return of motion. But I can say that the pain has been completely relieved. The operation was done about six weeks ago. The patient, a girl, twelve or fourteen years of age, fell and sustained a T-fracture of the condyle of the humerus, with the result of callous formation and imbedding the ulnar nerve in the callus by ankylosis. This was relieved and a cocked-up condition which the doctor showed was evident in the little finger and ring finger. Within ten days after operation was done, all the pain, which had been markedly present in the fingers, was relieved. The muscles have not regained their tone.

Curran Pope, Louisville: I have listened with great pleasure to the paper of our distinguished visitor and guest, and I wish to heartily endorse everything that he has said as far as he has gone. I may perhaps be very gravely in error, but it does seem to me, that if one thing the war has done, it has taught the lesson that we must not stop where the essayist stops.

There are two mechanicians concerned in the handling of peripheral nerve injuries, whether those injuries be due to the misfortune of war, or due to the economic accidents that upset us as often as almost any war, in this country. The first mechanician normally and naturally, is the surgeon, and his work is a mechanical one, and it is his duty to put an arm or a nerve in the finest and the best mechanical condition possible, and there in my humble opinion his value literally ceases, and he should step aside.

Anyone who has gone through the wonderful hospital at Fox Hills on Long Island can but realize that with the termination of surgery the work has just begun. With painful conditions, with failing nutrition, with all these things that are crying loudly and strongly for correction, the other mechanician steps in and with his whirlpool bath, his diathermic current, with his electrical stimulation, with his massage, with his forced movements, with his exercises, with his mechanical methods, brings about a restoration that in many instances would not be attained if simply the work ceased where the first mechanician stopped. In other words, the second mechanic, the neuro-mechanic, if you please, in contradistinction to the surgical mechanic steps in and takes his place in the great restoration of these people who are apt to become such a burden to themselves and to the communities in which they live If I may be pardoned to say so, it is certainly one pleasant thing to think that this war has swept away literally from one end of the country to the other, the ignorance and prejudice that existed with regard to a great many of these therapeutic measures, and in which vast numbers of doctors assigned to them a solely suggestive influence. The mental side, in spite of the fact that the laboratory did all these things on occasions, demonstrated that we were capable of inducing mechanical thermic and chemic conditions.

The doctor got beautiful results, but I am coming to believe from my own observation, from my use of all these things I have mentioned in my own work, that the success and the results would be far better if they were employed as in after treatment.

I agree thoroughly with him as far as he has gone in his surgical work, and as far as the ordinary plain medical man can judge of a surgeon's work, but I think the patient should after this be given the benefit of all methods, and not of one. That is my plea.

William E. Gardner, Louisville: I wish to express my appreciation of this very interesting paper, and while it is essentially a surgical paper, yet from a neurological standpoint it is also of more than ordinary interest. I heartily endorse the idea brought out by the essayist that we must look to surgery for the main improvement in these cases, and yet, at the same time, electrical measures are also essential. We know that a normal nerve responds to the faradic current, and the corresponding muscle responds to the galvanic current. By the use of the faradic current alone we can find changes in the electrical reaction of the nerve, but to make a complete reaction of degeneration it is necessary to have both faradic and galvanic currents, and a great deal can be offered, especially in the matter of prognosis, by making this reaction of degeneration after the surgical process has been completed and a good surgical result has been obtained. I think a great deal can be demonstrated by the "Reaction of Degeneration."

Of course, massage, maniuplation and suggestion are very important. After an individual has lost the use of his arm for a certain length of time, and even after all inflammatory processes have subsided, and a good surgical result has been obtained, the patient should still be encouraged by strong suggestion to use the arm more and more as time goes on, and he has to be shown how to do this to the best advantage.

I was impressed, while in Chicago this past summer, in seeing the splendid work being done along this line by Dr. Lewis J. Pollock at the Cook County Hospital, and his work is of special interest at this time, the importance of which cannot be overestimated, on account of the large amount of information obtained during the recent war and demonstrated by good men like Dr. Coleman, Dr. Pollock and others, who have devoted so much time to the repair of these nerve injuries. While Dr. Pollock is not a surgeon, but a neurologist, he has been working along the lines brought forth by the essayist, especially in the matter of diagnosis and restoration of function.

. **Louis Wallace Frank,** Louisville: One of the points which I wish to mention has been emphasized by the essayist and also by Dr. Gaither, and that is the importance of making a very careful examination at the time of the injury. It is essential that we know whether the nerve lesion occurred at the time of injury or developed later. Especially is this the case in fractures of the middle of the humerus, where the musculospiral nerve may be lacerated or torn in compound fractures. It is important to know whether there is continuity of the nerve, whether the nerve block is physiological or organic, and also whether the lesion became manifest later. The method of treatment varies with the condition; and the method of splinting is different.

In all injuries to nerves it is essential that proper splints be applied to prevent contractures, if we expect to obtain good results. Even though nerve regeneration takes place a poor functional result will be obtained if we have permitted the opposing group of muscles to contract and shorten. As Dr. Pope mentioned, massage, electricity and proper hydrotherapy have their place in the treatment of nerve injuries.

The other point I wish to emphasize is in regard to the time of nerve suture. Practically all the war wounds were infected, consequently these cases had to wait three of four months, until all infection had subsided, before they could be operated and nerve suture performed. In France, a great deal of fertilization has been done with manure, and so, when a soldier received a shell wound a great deal of bacteria-laden material was carried in. Many of the infections were caused by streptococci and gas-forming organisms. We do not see this type of infection in civil practice, and consequently recovery is quicker and nerve suture may be done earlier. When the operation is done late, we often see fibrosis or even neuromata at the ends of the nerves. When this is present a certain amount of tissue has to be sacrificed before the nerves can be successfully sutured. In cases operated early this is not necessary or if so only a small amount of tissue need be removed.

To do a successful nerve suture it is essential that the scar tissue at the ends of the nerve be entirely removed. That this point has been reached is manifest by the stippled appearance of the ends of the nerve. As long as the nerve fasiculi do not stick out (which gives the stippled appearance just mentioned) one may be sure that there is still more scar tissue at the end of the nerve.

C. C. Coleman (closing the discussion): In reference to the use of simple tests for paralysis of certain nerves, I may say that Dr. Gaither has helped my paper considerably by calling attention to some of the things that ought to be discussed in a paper of this kind.

A simple test for ulnar nerve function consists of the lateral movements of the fingers. Because of numerous substitutions of muscle action, the so-called "supplementary" movements, all of these tests may fail. A patient with a complete lesion of the ulnar nerve may be able to do lateral movements of the fingers by a substitution of musculospiral function. The fingers are extended and spread by the common extensors supplied by the musculospiral. Approximation of the fingers is assisted by the deep flexors of the forearm supplied by the median and ulnar. Therefore, in a low complete lesion of the ulnar the patient may have lateral movements of the fingers which closely imitate movements produced by the interossei which are all supplied by the ulnar. Great care is necessary to detect these "supplementary" movements. It is very rare that a patient with complete lesion of the ulnar nerve at any level can superimpose the extended little finger upon the palm of the ring finger. This test is perhaps the most useful simple test for the detection of an ulnar nerve lesion. The ability to approximate the pulp of the fingers rules out a median lesion and this test is useful for an examination of the nerve in lesions at any level. A patient who can set the extended thumb at right angles to the palm (adduction) in a large majority of cases has a functioning median nerve. Substitutions, however, for this movement are occasionally seen through the combined action of the flexor brevis pollicis (ulnar supply) and the thumb extensor (musculospiral supply.)

Dr. Pope in his discussion confirms what was said about the present status of nerve surgery and the treatment of nerve injuries. I did not include treatment, except to mention nerve suture, because of the limited scope of my paper. Whether nerve suture is done or not it should be the rule to give patients with nerve injuries well regulated physio-and electrotherapy, and such treatment should be begun early. A word of precaution, however, may be spoken in reference to these useful aids in the treatment of an injured nerve. The patient may accept such treatment with complacency for a long period of time, and fail to make the proper effort even after voluntary movement has begun to return. Such treatment should be carefully supervised by the physician.

Our experience with pain after neurolysis indicates that such patients generally require further surgery. Severe pain following nerve injuries was described by Weir Mitchell during the Civil War, and was termed "causalgia" by him. If such pain continues after freeing the nerve from scar tissue 60% alcohol should be freely injected into the nerve trunk above the lesion. If this fails to relieve the pain, and it did in some of our cases, it may be necessary to excise the neuroma and do a direct suture. Electrotherapy and physiotherapy were usually unsuccessful in such cases of our series.

I am glad that Dr. Gardner brought out the uses of galvanic and faradic electricity in the study of nerve lesions. A sterilized faradic electrode should always be available during an operation for nerve injury. Exposure of the nerve and stimulation of the trunk will often enable the surgeon to do a more conservative operation than was indicated by clinical study of the patient. A study of the electrical reactions in paralysis of the facial nerve may be of great help in estimating the amount of injury or infection which this nerve sometimes suffers. Following mastoid infection, more often after mastoid operations, there may be a complete peripheral paralysis of the facial nerve. The severity and duration of this paralysis may often be estimated by the response to galvanic stimulation. We have not found Reaction Degeneration in the typical way as described in the textbooks, but investigation of electrical reactions often gives considerable assistance in the study of a nerve lesion and these reactions should be routinely tested.

My paper is again helped by Dr. Frank's discussion because he has brought out some of the requirements of correct nerve surgery. It is necessary in doing nerve suture to remove the scar tissue on the ends to a point where the neuraxes can be identified. The suture of neuroma ends will not give good results. Another important principle of nerve suture is the relief of tension on the suture line. This can be done in a number of ways. The technical details of nerve suture are numerous and have a direct bearing on the end results.

I want to thank the various gentlemen who discussed my paper for bringing out many important points.

VITAL STATISTICS AND MEDICINE.*

By Stewart R. Roberts, Atlanta, Ga.

Moses was the first director of the census of the children of Israel by special command of the Lord, with the condition that there should "be no plague among them when thou numberest them." David saw a pestilence, "and there died of the people from Dan even to Beersheba seventy thousand men." The stars above, our own hairs and steps and days, our very births and deaths are all numbered. "All the world's a stage and all the men and women merely players; they have their exits and their entrances." Henry VIII in 1538, ordered all churches to keep true and exact records of all weddings, christenings and burials. "There is no exception from the common lot, but all are bound by the same ailments and afflictions" with their fellows of all ages within the limits of incidence, race, geography and season. As Addison so wonderfully wrote: "The Bridge thou seest, said he, is Human Life; consider it attentively. They fell through one after another, being quite tired and spent with so long a walk."

The data of vital statistics takes account of the entrance, the walk on the bridge, the ailments and afflictions, the times of weariness and falling through. Each verified fact and figure of this data is a contribution to the "treasury of physics." Statistics are not to be regarded as a new science, but as a method of all science, in the accumulation of facts, tendencies and proved sources of true conclusions. Science does not belong to a "wicked and perverse generation," but it does "seek after signs," which in its own tongue it calls proof, as distinguished from mere statement. One of the duties of State Boards of Health is to obtain medical and vital statistics. The collecting of such statistics is a true partnership which to be successful necessitates the persistent cooperation of all practicing physicians with the Director of Vital Statistics of the area served, be it the municipality, the county, the state or the nation. For just a little prompt paper work, the physician contributes in figures his experiences and reports his cases to this ever increasing knowledge of our science.

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*Read before the Association of Southern Statisticans at Atlanta, Ga.

It is, therefore, appropriate to ask the importance and the value of such statistics to the medical man. What are his contributions worth in totals? Is it worth while to know the statistical pathology of his political area? Are the number of births and deaths valuable—the rise and fall of populations? Is the registration and legal establishment of a birth of value to the individual and the state? Is baby life worth accounting for? Is it worth while knowing how long people live, and of what they die? Is medicine just a science, or just an art; or is it not rather both a science and an art, and a great administrative function as well? Shall this practitioner of medicine, this artist of this science live clinically unto himself alone, or shall he by reporting statistically and persistently his cases, births and deaths become an essential in the function of government; a contributor to his science; a greater service in his art? Is he merely a practitioner or is he not a far better practitioner of higher and finer discernment and power, by naming what he sees, when he sees it, and reporting the results of his services?

(1) Vital statistics are one of the very foundations of the medical man's reasoning and practice. They form the evidence from which he may deduce findings in reference to marriages, births, morbidity rates of sickness and disease, the causes of death and the actual and comparative health of communities and nations.

(2) Statistical analysis is used more and more in study, in writing and in clinical medicine. Kilgore has shown that from 1840 to 1920 the average percent of quantitive or statistical articles in representative medical journals has increased from three percent to fifty percent. Sydenham was the father of clinical medicine and discussed the qualities of disease and based his therapeutics on his personal experience. Disease to him was a qualitative process, variable in the kind and degree of symptoms. Modern medicine has taken this qualitative idea and added the idea of disease as a quantitative process as well. Sydenham discussed the kind of measles and the symptoms in the spring of the year 1670. The new medicine asks how many cases of measles were there, how many deaths, how many had pneumonia, and medical statistics properly reported and tabulated offer the only hope of answer.

(3) No man in medicine today can think with the larger vision and the higher bird's eye view unless one phase of his thinking is in figures and statistics. For example, the baby was sick and the doctor came and treated the baby but the baby died. This is a fact, a bereavement, a national loss. But of what did the baby die? What was done to keep him from dying? What was done in his community, in his home, in his state, long before this particular baby was born, to keep all babies from dying? How many babies die anyhow, at what age, and why do they die? Do certain communities have fewer deaths proportionately than the dead baby's community and what preventive measures do they use? Quantitative medicine naturally inquires into methods of treatment and prevention and discusses results.

(4) Vital statistics are tolling the miserable comment on Georgia that 58 per cent of all deaths in this state in July and August, 1920, were children under ten years of age. In England in 1917, there were 64,483 deaths in children under one year of age. With such facts as these every doctor can enlist the ear of every mother and through the mothers more preventive medicine can be done. The woman as a voter embodies the future biologic and sociologic statesmanship of the country. She is the voter who will call upon the physician and the physician upon the Bureau of Vital Statistics for such biologic facts as birth rates, the deaths from syphilis, dangers to babies from impure milk, why typhoid fever is found in any given communities, hospitals and poverty and many similar problems. In two schools in Bibb county, 43 per cent of the children are from 7 to 30 percent under weight. One third of the children so far tested in America are 10 percent under weight. We can see clearly now that applied pediatrics is only half the story —preventive pediatrics the ather half. Prenatal care must develop. We must treat the baby long before his future parents reach maturity. It is education and energy versus ignorance and inertia. We need a health officer in every county and a physician who

has legal entrance and authority in every school.

(5) Statistics teach the medical men how cheap mothers are. Bacteriology, aseptic methods, the price of careless ignorance are well known, yet histories in private practice, insurance examinations with their family history section, and public statistics with one accord prove the frequency of deaths from puerperal sepsis and toxemias, all largely preventable. Think of fifteen thousand mothers dying in the United States in one year from these causes. Vital statistics show that obstetrics is probably the most neglected field in medicine. Ignorant obstetrics is careless crime. Only two of fifteen foreign countries show higher death rates from childbirth. Such tables as the following show the distribution of mortality due to pregnancy and birth, and are the result of statistics:

Puerperal sepsis, 31.7%.

Puerperal albuminuria and convulsions, 21.6%

Puerperal hemorrhage and other accidents of childbirth, 25.5%.

Other Puerperal conditions, 10.4%.

Accidents of pregnancy, 10.5%.

(6) Statistics teach the comparative frequency of different diseases, the great factors in mortality, and where to concentrate our studies, efforts and therapeutics. We hear much of encephalitis lethargia, but there are more cases of malaria in one county in Mississippi in one year than cases of encephalitis in the entire country. Tuberculosis, heart disease and nephritis, in order, are the three great causes of death in the United States. The first is decreasing and the last two increasing. Statistics here point to the tendencies of disease. Acute appendicitis is the most frequent acute disease and chronic appendicitis the most frequent chronic disease in the abdomen. By the curves of possibility and probability we must bear in mind the appendix in abdominal diagnosis.

(7) As an administrative arm of the government, medicine as yet has hardly begun to function. In 1879, there were only nineteen State Boards of Health, largely then theoretical and with little practical application. To the State Boards of Health and the Director of Vital Statistics medical men are turning for information. The doctor must cooperate by reporting; the Board of Health by condensing, concluding and publishing. The Director of Vital Statistics is the tabulating machine of the population, the keeper of the records of life and disease and death. He has hardly begun to work as yet. Every year will his duties and influence increase. We shall come to him to learn of industrial medicine, of the influence of occupation on life and the production of disease. We shall gain from him the results of therapeutics and the value of preventative medicine. From him pathological heredity will gain its greatest figures. The conditions of longevity, the harm or harmlessness of a habit, the value of prenuptial medical examinations, the venereal prevalence, the frequency, mortality and localization of cancer, the relative health of rural and urban populations, the name and location of healthful and unhealthful communities—for all these and many more facts will the medical man look to the keeper of the records.

We are in the midst of the greatest functioning and flowering of medicine and public health the world has ever known. Medicine holds the keys to human happiness and progress and safety. It is no longer just physician and patient, for medicine includes these and public health and preventive medicine, the medical profession and the public. All these with one accord look to Vital Statistics for information and guidance. In France in 1918 there were 400,000 births and 800,000 deaths, not counting the deaths of soldiers—that is two deaths to one birth. Medicine has given to vital statistics the profoundest fact about the French people. At this rate with France it is only a question of time. Our population is chiefly urban for the first time, yet 70 percent of our land is uncultivated and the average city family runs out in three generations. The unconquered field in medicine is the group of acute respiratory diseases, influenza, bronchitis, pneumonia, whooping cough and measles. With problems like these, the mere reporting on a postal card of a disease, a birth, a death seems unimportant; but brick on brick, such reports from the increasing structure of vital figures to which the profession of medicine, the public and the state are turning with expectant frequency and demand.

Silica in Treatment of Arteriosclerosis.—This communication relates the details of a few out of the hundreds of cases of arteriosclerosis treated with silica by mouth or vein or both. The writers say that this treatment is harmless and may prove effectual after failure of other measures, the patients throwing off their dizziness and headache, the tendency to insomnia growing less, and menstration becoming normal. Some of the patients who had been confined to bed were restored to active life. The dose is 0.01 gm. of sodium silicate by the vein at two or three day intervals, plus 0.6 gm. by the mouth. From four to twenty intravenous injections were given in these cases.

ADDRESS OF THE RETIRING PRESIDENT OF THE JEFFERSON COUNTY MEDICAL SOCIETY*

By John King Freeman, Louisville

This society, the largest county medical society in the state, I am happy to say has enjoyed a very prosperous year, not from any administrative ability that may have been exercised by any of its officers, especially, but from the active co-operation and live interest among its members.

We are the largest county society from the nature of our surroundings; we are the most harmonious from the nature of our members. The members have made the year 1921 most satisfactory in every way. We have had twenty regular meetings and four special meetings. One was a memorial meeting which I hope will form a precedent for a special memorial meeting every year for deceased members.

We entertained the State Medical Association during September, and in a manner equal to the hospitality of Louisville, Kentucky.

Our case reports and papers have been well prepared and presented and will go down as valuable contributions to our medical and surgical archives. Many of them have been illustrated by drawings and lantern slide pictures. Our discussions have been thoughtful, practical and timely, and we must say the year has been well spent.

The public must know that we have been considering them. Our health department has consulted us and some of their health and administrative problems have been referred to our committees.

We are working for the best. We, the Jefferson County Medical Society, are for the best for all in our community and commonwealth, and are still fervent in our desire that we shall do all we can for the relief of pain and distress and we should demand our proper recognition.

Problems are already presenting and we must look that the modest scientist does not sit still and let bigotry and ignorance usurp all that is due him. May we not ask for an explanation when an intelligent minister is reported to have introduced and sanctioned the work of "a cure anything" who says bacteriology is a farce and the germ theory is foolishness? We must be more active in our defense; we must not sit still and let these and many other thrusts go unfinished.

We should be more active in legislative matters both those which concern medical men and the general public. We must lose sight of any political party and strive for universal good.

If some of our ministers decry science, if some of our health authorities do seem to be biased by political selfish environments, it is for us to take hold and see that the best for all and science shall prevail.

Is it right that each doctor should pay a license fee to our city to practice, when he does so much for the city's charity, works faithfully with its health authorities in combatting contagion and pestilence? Our health boards would be powerless if it were not for the willing co-operation of doctors to check any epidemic that threatens in our midst.

We have a right to be better known, and we have a right to more respected, for the work we are doing in our midst.

It is an insult to license a doctor as an ordinary merchant or peddler. Our members in general practice can more fully appreciate this than our specialists. The general practitioner is in the trenches and is the one who goes over the top.

One word to the general practitioner from this society: we want you to understand that we would like to have you take a more active part in our programs. Take time to bring us some of your interesting cases and case reports. Do not think this society is run for or by specialists.

In conclusion let me say to the members of the Jefferson County Medical Society:

We, the largest in numbers, the most harmonious in thought, our skill and attainments are equal to the best, and our advice to the public for health should be heeded by everybody.

We will say we have no politics,

We will say we have no cults,

We will say we have no cliques,

But we do not say we have no religion. And may we offer a prayer that our members and religious teachers and the public be further enlightened in our great work for the common good of our city and community and nation.

I thank you for your honors; I thank you for your co-operation.

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D. M. Griffith .... *Owensboro*
THIRD DISTRICT
J. H. Blackburn .... *Bowling Green*
FOURTH DISTRICT
C. Z. Aud .... *Cecilia*
FIFTH DISTRICT
C. G. Hoffman .... *Louisville*
SIXTH DISTRICT
R. C. McChord .... *Lebanon*
SEVENTH DISTRICT
A. W. Cain .... *Somerset*
EIGHTH DISTRICT
J. E. Wells .... *Cynthiana*
NINTH DISTRICT
J. W. Kincaid .... *Catlettsburg*
TENTH DISTRICT
R. J. Estill .... *Lexington*
ELEVENTH DISTRICT
J. S. Lock .... *Barbourville*

SECRETARY-EDITOR.
Arthur T. McCormack .... *Louisville*

BUSINESS EDITOR
L. H. South .... *Louisville*

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V. D. Guittard .... *Maysville*
P. K. Holmes .... *Lexington*

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DERMATOLOGY
M. L. Ravitch .... *Chicago*
S. A. Steinberg .... *Louisville*
GENERAL SURGERY
C. A. Vance .... *Lexington*
L. Wallace Frank .... *Louisville*
F. T. Fort .... *Louisville*
PEDIATRICS
P. F. Barbour .... *Louisville*
OBSTETRICS
Edward Speidel .... *Louisville*
L. C. Redmon .... *Lexington*
EYE
Adolph O. Pfingst .... *Louisville*
EAR, NOSE AND THROAT
C. T. Wolfe .... *Louisville*
S. S. Watkins .... *Louisville*
PROCTOLOGY
G. S. Hanes .... *Louisville*
Bernard Asman .... *Louisville*
PRACTICE OF MEDICINE
P. D. Gillim .... *Owensboro*
R. H. Cowley, ... *Berea*
ANESTHETICS
W. H. Long .... *Louisville*
DENTAL PROPHYLAXIS
George H. Heyman .... *Louisville*

ANNUAL MEETING, PADUCAH, 1922.

COUNTY SOCIETY REPORTS

Eye, Ear, Nose and Throat Section of the Kentucky State Medical Society.

A call for the formation of the section having been sent out, men from various parts of the State assembled in the Leather Room at the Seelbach Hotel September 19, 1921.

The meeting was called to order at 10:30 a. m by Gaylord C. Hall, who was Secretary of the Louisville Eye, Ear, Nose and Throat Society and sent out the notices for the meeting.

He explained in brief for what purpose the meeting had assembled and requested nominations for temporary Chairman. A. O. Pfingst nominated J. A. Stucky for temporary chairman. Stucky was unanimously chosen for this office. Gaylord C. Hall was nominated for temporary Secretary and elected. A tentative constitution having been prepared by the Secretary it was moved that this be read and adopted section by section and finally as a whole before permanent officers were elected. This was accordingly done. A. T. McCormack, of the State Medical Association, was present and addressed the doctors concerning the attitude of the State Association towards the various sections, stating that while they would be part of the State Association, they would be a separate, self-governing unit, having complete charge over the administration of their affairs, but that the running expenses of the Section would be defrayed by the State Association.

After some discussion the following constitution and by-laws were adopted:

CONSTITUTION

ARTICLE I.

NAME

The name of this Section shall be the Section on "Eye, Ear, Nose and Throat of the Kentucky State Medical Association."

ARTICLE II.

OBJECTS .. ..

The objects of this Section shall be to promote the science and art of medicine, particularly in its relation to eye, ear, nose and throat; the development of original work; the furtherance of good fellowship and social intercourse among its members.

ARTICLE III.

OFFICERS

Section 1. There shall be a President, Vice-president, Secretary, and a Treasurer, who shall be elected at the regular meeting and serve for one year.

Section 2. These officers together with three addtional members selected at the annual meeting shall constitute the council for the transaction of the general business of the Section.

Section 3. These three members shall be elected for terms of three, two, and one year respectively; one to be elected at each subsequent annual meeting. They shall not be eligible to succeed themselves.

ARTICLE IV.

ELECTION OF OFFICERS

Section 1. At the annual meeting an election of officers shall be held. Nominations for office shall be made from the floor. Voting shall be by secret ballot.

Section 2. In the event of having several nominations for the same office, the one receiving a majority of all votes cast shall be declared elected.

Section 3. In the event that no majority is received on the first ballot, the low man shall be dropped and the balloting shall proceed until one candidate receives a majority of all votes cast.

ARTICLE V

MEMBERSHIP

Section 1. Membership in the Section shall be of two kinds, Regular and Honorary.

Section 2. Regular members shall consist of those members of the profession in the State of Kentucky, in good professional standing, members of their State and County Societies, who devote themselves exclusively to the practice of diseases of the eye, ear, nose and throat; those men in neighboring states of similar qualifications who may petition the Section for membership.

Section 3. Honorary members must be men of eminence, actively engaged in the practice of the diseases of the eye, ear, nose and throat.

Sction 4. Application for membership must be made in writing and signed by two regular members of the Section. All applications shall be submitted to the council and presented with their recommendation at the regular meeting of the Section.

Section 5. Election of new members shall be held at the regular meeting of the Section. The vote shall be by secret ballot and three adverse votes shall exclude the candidate.

Section 6. Any member in good standing may resign from the Section. Such resignation must be presented in writing at the annual meeting of the Section and accepted by that body.

Section 7. The Section may suspend or expel a member for violation of its regulations or for the commission of any act which effects unfavorably the character of the profession or the interests of the Section.

Section 8. A three-fourths vote of the members present at any annual meeting shall be necessary to suspend or expel a member. This vote shall not be taken unless action shall have been taken by the council and the printed call for the meeting contain a notice of the motion to suspend or expel a member, except in the case of delinquents for dues or assessments, when a private notice sent to a delinquent by mail at least two months previous, shall suffice.

Section 9. The council shall have power in the interval between the annual meetings to suspend a member for violation of the rules of the section or for action which is deemed detrimental to the interests of the Section or of the medical profession. Such suspension shall be effective only until the next meeting of the Section.

ARTICLE VI.

MEETINGS

Section 1. The annual meeting shall be held on the first day of the regular session of the State Medical Association in the town in which the State Association convenes.

Section 2. Meetings of the Council shall be held on call by the President.

Section 3. Five members may petition the President for a Council meeting, which must then be called.

ARTICLE VII.

DUTIES OF OFFICERS

PRESIDENT

Section 1. The President shall preside at all meetings of the Section and the Council; he shall maintain a vigorous administration of the affairs of the Section; shall sign all documents requiring his signature; appoint all committees not otherwise provided for, and shall be ex-officio member of all standing committees.

VICE-PRESIDENT

Section 2. In the absence of the President, his place shall be filled by the Vice-president.

SECRETARY

Section 3. a. The Secretary shall keep a record of the annual meetings and give due notice of the same; keep a record of all meetings of the Council; transmit all communications to their proper committees and transact such business as pertains to his office.

b. He shall send to each member at least thirty days prior to the annual meeting, the names of all candidates proposed for membership, together with the names of the proposers and seconders of said candidates.

TREASURER

Section 4. The Treasurer shall receive and take charge of all moneys of the Section, and do the necessary business pertaining to the finances of the Section, and shall render an account thereon at the annual meeting, at which time an auditing committee shall be appointed to report.

DUTIES OF THE COUNCIL

Section 5. a. The Council shall meet as often as the interests of the Society may demand.

b. Five members shall constitute a quorum.

c. It shall manage the affairs of the Section subject to the action of the Section at the annual meeting.

d. It shall consider the qualifications of candidates for membership, and shall have the sole power of making nominations.

e. It shall have the power to fill all vacancies in its number or among the officers of the Section occurring between annual meetings.

f. The Council shall be the nominators for the three Examiners for eye, ear, nose and throat, appointed by the State Board of Health.

ARTICLE VIII.

PROGRAM

Section 1. The program of the annual meeting shall be under the direction of the Council.

Section 2. All papers read before the Section shall become the property of the Section. These papers shall be published in the Kentucky State Medical Journal.

Section 3. The length of papers shall be limited to twenty minutes. Discussions of papers shall be limited to five minutes. No member shall speak a second time on the same subject if another member desires to speak.

ARTICLE IX

ORDER OF BUSINESS

1. Call to order.
2. Reading of minutes.
3. Report of officers and council.
4. Election of new members.
5. Unfinished business.
6. Election of officers.
7. New business.
8. Scientific program.
9. Adjournment.

ARTICLE X.

AMENDMENTS

This constitution may be repealed or amended by a three-fourths vote of the members present at any annual meeting, provided a notice to that effect shall have been published in the number of the State Journal preceeding the meeting and a written notice sent to each member of the Section by the Secretary, at least thirty days before the meeting.

At two o'clock the Section reconvened for the scientific program, S. G. Dabney presiding.

Under case reports, C. T. Wolf reported a case of double optic neuritis in a little girl seven years old. Vision had suddenly left her following a fall upon her head. Examination of the eyes two days later showed decided choked disc in both eyes. There were no other lesions; no paralysis; no other symptoms. Wassermann showed plus four. Patient was put on antispecific treatment and rapidly recovered. Vision is now 20-20.

The first paper on the program was read by D. M. Griffith on "The Treatment of Acute Mastoiditis."

G. F. Doyle next read a paper on "A Case of Bilateral Acute Suppurative Mastoiditis with Intra Cranial Complications."

H. G. Reynolds having been called away from the meeting, the President asked W. B. McClure to read his paper on "The Indications for the Simple Mastoid Operation.

Following the adoption of the constitution and by-laws the Section stood in election of permanent officers which resulted as follows:

President, S. G. Dabney; Vice-president, A. O. Pfingst; Secretary, Gaylord C. Hall; Treasurer, I. A. Lederman; Members of the Council—for three years, D. M. Griffith; for two years, James O. Carson; for one year J. A. Stucky.

S. G. Dabney, on assuming the chair, spoke as follows:

Accept my sincere appreciation for the compliment done me.

It seems we have made an admirable start.

We feel indebted to Dr. Hall for having brought the outline of the constitution which has saved us a great deal of time.

It is a pleasure to have Dr. McCormack with us. He has solved for us the question of separate society or section. I feel from my own part that the decision is wisely made from every standpoint. There are six or seven sections organized today.

The Secretary, as everyone knows, is the life of a medical society. It requires industry, ambition and application. He has all three of these and puts them all into medical work and will make the society a good secretary. Dr. Hall fills the bill.

The membership seems to me excellent; spread about all over the State of Kentucky.

Dr. Stucky has served in special work a great many years. With him the single exception I perhaps have been engaged in special work longer than anyone else. It is interesting and very encouraging to see not only the members who are now engaged in special work in Kentucky, but the spirit. By knowing each other better the members are more likely to get along harmoniously. In Louisville the relationship between different specialists is cordial and agreeable.

Dr. Pfingst is the father of our local eye society. Dr. Pfingst's energy and enthusiasm made it a go. It is now a flourishing society. We have a membership of twenty or twenty-three; a good attendance and good papers.

Thank you very much for the compliment. I will endeavor to do all I can for the promotion of our new society.

After the installation of the permanent officers a recess was taken until two oclock.

The following doctors registered as charter members of the section.

T. L. Bailey, Madisonville; R. W. Bledsoe, Covington; R. L. Carrick, Lexington; Jas. O. Carson, Bowling Green; O. M. Crenshaw, Lebanon; C. DeWeese, Lexington; J. M. Prichard, Ashland; Geo. F. Doyle, Winchester; Murison Dunn, Richmond; L. S. Givens, Cynthiana; D. W. Griffith, Owensboro; W. B. McClure, Lexington; C. E. Purcell, Paducah; W. N. Offutt, Lexington; H. G. Reynolds, Paducah; Orrin L. Smith, Lexington; Milton J. Stern, Paris; Jas. H. Thorpe, Owensboro; Gilson E. Townsend, Bowling Green; J. A. Stucky Lexington; W. S. Stucky, Lexington; J. W. Wilson, Frankfort; Austin Funk, Jeffersonville, Ind.

The following members are from Louisville: A. L. Bass, M. C. Baker, S. G. Dabney, Walter Dean, Jos. D. Heitzer, Gaylord C. Hall, C. W. Kelley I. A. Lederman, C. C. Maupin, J. R. Peabody, H. L. Peele, A. O. Pfingst, M. E. Pirkey, Harry N. Ritter, G. A. Robertson, J. J. Shafer, J. H. Simpson, S. Shelton Watkins, S. W. Weinberg, J. R. Wright, J. J. Wynn, C. T. Wolfe.

Order of Scientific Program:

The Treatment of Acute Mastoiditis, by D. M. Griffith, Owensboro.

A Case of Bilateral Suppurative Mastoiditis with Intracranial Complications, by G. F. Doyle, Winchester.

The Indications for the Simple Mastoid Operation, by H. G. Reynolds, Paducah.

These papers were discussed by J. A. Stucky, S. S. Watkins, C. E. Purcell, I. A. Lederman, Walter Dean, M. J. Stern, G. E. Townsend, M. C. Baker, C. DeWeese, J. R. Peabody, A. L. Bass, R. W. Bledsoe, G. F. Doyle, D. M. Griffith.

New Uses of Endoscopy, by C. E. Purcell, Paducah.

Discussion by Gaylord C. Hall, S. S. Watkins, D. M. Griffith, C. E. Purcell.

Associated Diseases of the Eye and Nasal Accessory Sinuses, by C. DeWeese, Lexington.

Discussions by J. A. Stucky, J. D. Heitzer, C. DeWeese.

After the conclusion of the program the society adjourned.

GAYLORD C. HALL, Secretary.

Hardin—The regular monthly meeting of Hardin County Medical Society was held on Nov. 10, 1921, with the following members present: J. C. Mobley, President; W. F. Alvey, F. P. Strickler, C. C. Carroll, H. R. Nusz, C. W. Rogers, R. T. Layman, J. M. English and D. E. McClure.

The regular routine of business was transacted. Upon motion and second the fee for normal labor was changed from $25.00 to $20.00.

The election of officers for 1922 resulted as follows: H. R. Nusz, President; R. T. Layman, Vice President; C. W. Rogers, Censor; J. M. English, Delegate; W. F. Alvey, Alternate Delegate; D. E. McClure, Secretary-Treasurer.

The meeting then adjourned.

D. E. McCLURE, Secretary.

Warren—The Warren County Medical Society met October 12, 1921, at 1:30 p. m., at the City Hall, with the president, J. W. Lewis, in the chair and the following members present:

T. H. Singleton, J. H. Blackburn, Souther, Rau, Cherry, M. M. Moss, J. L. Neel, Rutherford, T. W. Stone, Donnelly and W. H. Neel.

The minutes of the previous meeting were read and approved.

B. S. Rutherford read a paper entitled "Blood Pressure," which was thoroughly enjoyed by every member.

E. Rau volunteered to have a paper on "Acute Middle Ear Infections in Children."

J. H. Souther will read a paper on "Food for

Thought'' for the next meeting. At the meeting of the Society on September 14, 1921, the members voted George White, Oakland, a life membership in the Society.

H. N. NEEL, Secretary.

Christian—The Christian County Medical Society met in regular session, December 20th, at the Public Library, Hopkinsville, Ky., with W. S. Sandbach, the President, in the chair.

Members present were: F. M. Stites, Austin Bell, J. G. Gaither, W. E. Reynolds, M. W. Rozzell, J. B. Jackson, T. W. Perkins, D. K. Erkiletian, Andrew Sargent, R. L. Woodward, J. W. Harned, J. H. Rice, P. E. Haynes, J. L. Barker, H. W. Watts, W. S. Sandbach, J. J. Ezell, B. A. Caudle, G. W. Lovin and R. W. Brandon.

This being the annual meeting for the election of officers for the ensuing year the Chair asked for the report of the nominating committee, composed of Drs. Stites, Barker and Williams The following report was made by Dr. Stites, and received a unanimous vote and so declared unanimously elected.

Austin Bell, President; O. L. Barnes, Vice President; W. S. Sandbach, Secretary-Treasurer; J. L. Barker, Censor; W. S. Sandbach and S. H. Williams, Delegates.

J. J. Ezell read an excellent paper on ''The Dietetic Treatment of Surgical Diabetics.'' B. A. Caudle, Austin Bell, J. L. Barker, F. M. Stites and J. G. Gaither freely discussed this paper.

P. E. HAYNES, Secretary.

Jefferson—The annual meeting of the Jefferson County Medical Society was held at the Louisville City Hospital, Monday night, December 19th, 1921, about two hundred members being present. The following officers were unanimously elected for the year 1922:

President, Charles Farmer; First Vice President, C. G. Arnold; Second Vice President, Fred Speidel; Secretary, J. P. Lukins; Treasurer E. L. Pirkey.

Fleming—At a meeting of Fleming county Medical Society, December 14, 1921, the following officers were elected: T. Ribilin, President; A. M. Wallingford, Jr., Vice President; Chas. W. Aitkin, Secretary-Treasurer; Censors, E. T. Runyan, A. S. Robertson and W. S. Reeves; Delegate to State Association, A. M. Wallingford, Jr.; Alternates, A. S. Robertson and C. L. Garr.

C. R. Garr discussed the subject of Diphtheria and emphasized the necessity of early diagnosis and the difficulty of diagnosing ''border line'' cases.

A. S. Robertson referred to his personal experiences with diphtheria over thirty years ago, paralysis following kept him on crutches for some weeks and aphonia lasted for a longer period.

T. Ribelin spoke of three cases of laryngeal diphtheria in the ''membranous croup days'' when the necrosed membrane was dislodged and recovery took place.

C. L. Garr advocated that when in doubt of a case treat it as diphtheria.

A. M. Wallingford, Jr. reported a case of suppurative tonsilitis where the tonsil was opened and three or four days later developed diphtheria, the patent died, notwithstanding large doses of antitoxin were given..

C. W. Aitkin discussed the differential diagnosis from a clinical standpoint, but advised laboratory examination. All the physicians present advocated the early use of anti-toxin in not less than 10,000 unit doses.

J. B. O'Bannon was granted leave of absence to conduct an obstetrical clinic in the country.

CHAS. W. AITKIN, Secretary.

Taylor—The Taylor County Medical Society held its regular annual banquet and election of officers on the evening of December 15, 1921, in the dining room of the Kerr Hotel, Campbellsville. The festive board fairly groaned with those viands which always make a perfectly satisfied inner-man.

Present: J. L. Atkinson, E. L. Gowdy, C. E. Murphy, W. R. Elrod, O. H. Shively, F. I. Buckner, Burr Atkinson and C. V. Hiestand. Drs. Black and Kelsey being absent on account of sickness.

After several post-prandal talks, and a general good time socially, the organization went into executive session and the following officers were elected for the ensuing year:

President, F. I. Buckner; Vice President, C. E. Murphy; Secretary-Treasurer, C. V. Hiestand; Delegate, J. L. Adkinson; Alternate, O. H. Shively; Censor B. T. Black.

C. V. HIESTAND, Secretary.

Harrison—The Harrison County Medical Society had its annual meeting and dinner at The Wallingford Hotel, December 5, 1921. Members and visitors present were: N. W. Moore, J. W. Renaker, T. R. Todd, G. H. Ross, G. A. Beckett, W. H. Carr, J. E. Wells, J. M. Rees, Josephus Martin, M. McDowell, J. H. Morgan, W. B. Moore, C. L. Swinford, L. S. Givens, T. M. Righter, I. D. Best, T. C. Redmon, E. J. Murray, W. R. Pinnell, G. W. Wilson, W. H. McLear, B. F. Vanmeter, J. P. Warren, S. B. Marks, J. W. Scott, of Lexington, W. D. Sanford and J. W. Baird, of Sadieville, F. L. Peddicord and Chas. Kendall, of Falmouth, J. T. Wallingford, of Covington, T. P. Scott, of Carlisle, B. M. Ricketts, of Cincinnati, Chas. Daugherty, Milton Stearns and J. A. Carr, of Paris, and W. N. Lipscomb, of Georgetown.

The election of officers for 1922 resulted in J. E. Wells being chosen for President; J. M. Rees, Vice President; W. B. Moore, Secretary; B. B. Petty, Treasurer: M. McDowell, Censor; W. B. Moore, delegate to State meeting. L. S. Givens was chosen Toastmaster and secured responses from Drs. Ricketts, Vanmeter, Redmon, Scott, of Lexington, Lipscomb, Daugherty, J. E. Wells and Scott of Carlisle. Meeting adjourned.

W. B. MOORE, Secretary.

Monroe—Monroe County Medical Society met at Dr. Bushong's office, December 8, 1921. Called to order by President G. W. Bushong. J. W. White, of Flippin, was elected President for the ensuing year, and J. F. Morris, Vice President. H. B. Ray, of Tompkinsville, was elected Secretary-Treasurer E. E. Palmore, of Strode, assistant.

A programme for the next regular meeting, January 19th, was made as follows:

E. E. Palmore, Lobar Pneumonia—Discussion opened by W. B. England; R. F. Duncan, Physical Diagnosis of Tuberculosis, J. A. White; Extraction of Teeth.

The Society went on record as favoring some modification of the present medical law whereby the man up the hollow in the sticks would not be entirely without a doctor in the near future, without lowering the present standard.

Bourbon—The Bourbon County Medical Society held its regular meeting on Thursday evening, December 15, 1921, at the Masonic Temple. The local society was host at a banquet, having seventeen guests from surrounding towns. Twenty-six members were present.

The following officers were elected for the ensuing year: President, Wm. C. Ussery, Paris; First Vice President, L. R. Henry, North Middletown; Second Vice President, F. M. Faries, Paris. Secretary-Treasurer, M. J. Stern, Paris; Delegate State Meeting, W. M. Kenney, Paris; Censors, J. A. Gilkey, 3 years, J. T. Brown, 2 years; Hospital Committee, Ussery, Williams and Daugherty.

Kennon-Dunham, Cincinnati, read a paper on "Tuberculosis," illustrated with lantern slides. Josephus Martin, Cynthiana; J. A. Stucky, Dr. Maxwell, Lexington; W. C. Ussery, C. G. Daugherty, Paris; Dr. Wooding, Cincinnati, discussed this interesting paper.

C. G. Daugherty made a motion that the dues be increased from $5.00 to $6.00 per year. This was seconded and passed.

Adjourned.

MILTON STERN, Secretary.

BOOK REVIEW

Diseases of the Skin—By Henry W. Stelwagon, M. D. Ninth Edition, revised with the assistance of Henry K. Gaskill, M. D., attending Dermatologist to the Philadelphia General Hospital, 1313 pages with 401 text illustrations and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $10.00 net.

The practical part of this subject is given in such a complete manner as to make the book of very great value to those engaged in general practice, diagnosis, the most difficult part of the subject has been given considerable attention. The description of the treatment has been described in great detail. The completeness of the work is reflected in several ways; practically all recognized dermatoses are discussed—some briefly, others at length—according to their relative importance and frequency. The author has evidently spared no effort to present a thorough and eminently authoritative book, destined to be of great value not only to the student and practitioner, but also to the research worker and writer."

Essentials of Laboratory Diagnosis—Designed for Student and Practitioners, by Francis Ashley Faught, M. D., formerly Director of the Laboratory of the Department of Chemical Medicine and assistant to the Professor of Clinical Medicine, Medico-Chirugical College, etc., Philadelphia, containing eleven full page plates (four in colors) and seventy-eight text engravings. Seventh revised and enlarged edition. F. A. Davis Company, Publishers, Philadelphia. Price $4.50 net.

The seventh edition embraces a description of many new and valuable methods found practical since the preparation of the former edition.

The author has endeavored to present in a concise manner as possible method of analysis. The appendix has been arranged so as to furnish a working basis for the equipment of a technical laboratory at the same time affording reference for the preparation of stains, reagents, etc.

Ringworm and Its Successful Treatment—By John P. Turner, M. D., Medical Inspector of Public Schools, Philadelphia, Pa. Illustrated by eight half-tone engravings. F. A. Davis Company, Publishers, Philadelphia. Price $1.00 net. Illustrated.

The author offers this treatise because of the prevalence of ringworm and because of the success obtained with several thousand cases. Several chapters are devoted to the treatment. Full discussion is given to the history of ringworm, its diagnosis, differential diagnosis and pathology.

The Practical Medicine Series—Comprising eight volumes on the year's progress in medicine and surgery. Under the general editorial charge of Charles L. Mix, A. M., M. D., Professor of Physical Diagnosis in the Northwestern University Medical School. Vol. IV. Pediatrics, edited by Isaac A. Abt, M. D., Professor of Pediatrics, Northwestern University Medical School, Attending Physician Michael Reese Hospital, with the collaboration of Johanna Heumann, M. D. Orthopedic Surgery, edited by Edwin W. Ryerson, M. D., Associate Professor of Surgery (Orthopedic), Rush Medical College; Professor of Orthopedic Surgery, Chicago Policlinic; Attending Orthopedic Surgeon, Children's Memorial and Henrotin Hospitals; Consulting Orthopedic Surgeon, Home for Destitute Crippled Children. With the collaboration of Robert O. Ritter, M. D., Associate Attending Orthopedic Surgeon, Children's Memorial Hospital. Series 1921. Chicago. The Year Book Publishers, 304 South Dearborn Street. Price of this volume $1.75. Price for series of eight volumes, $12.00.

The Practical Medicine Series offers a full reliable and authoritative record of advancement of medical science. In form and contents it exactly meets the needs of the modern practitioner. It is presented in a permanent, systematic text book form, edited by men of prominence.

The Spleen and Some of Its Diseases—By Sir Berkeley Moynihan. of Leeds, England. 129 Pages with 13 full page diagrams, Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $5.00 net.

This book contains the material upon which the author based the Bradshaw Lecture delivered at the Royal College of Surgeons of England in December, 1920.

The surgery of the spleen has hitherto enjoyed only a restricted field. The removal of the enlarged or injured organ, or of the normal organ whose pedicle has twisted, or the opening of abscesses or cysts within within the spleen, has been all that it was possible to do.

But in recent years the part played by the spleen in many other diseases has gradually been recognized, and an extension of surgical treatment to cases of cirrhosis of the liver, pernicious anaemia, haemolytic jaundice, etc., has taken place.

We are beginning to realize that the spleen too, plays its part, perhaps a considerable one, in the etiology of diseases whose most conspicuous symptoms are evoked by associated or consecutive affections of other organs. We can no longer consider diseases which affect one abdominal organ as being restricted to that organ. In the provocation and in the development of the morbid affections of any of these viscera, many of them may take a share. The spleen, which has been little regarded in this connection, may now justly claim a measure of attention.

1920 Collected Papers of the Mayo Clinic, Rochester, Minn.—Octavo of 1392 pages, 446 illustrations. Philadelphia and London: W. B. Saunders Company. Cloth, $12.00 net.

The new Mayo Clinic Volume in its 1,400 pages contains a wealth of clinical facts bearing directly on modern methods of diagnosis and treatment. There are 131 separate contributions from the Mayos and their associates. As in previous volumes, the contributions are arranged regionally, and the text is elaborately illustrated with 446 original illustrations.

The Blood Supply of the Heart in its Anatomical and Clinical Aspects—By Louis Gross, M. D., C. M., Douglas Fellow in Pathology, McGill University, and Research Associate, Royal Victoria Hospital, Montreal, with an introduction by Horst Oertel, Strathcona Professor of Pathology, Montreal, with 29 full page plates and six text illustrations. Paul B. Hober, New York, Publishers. Price $5.00.

This monograph on the blood supply to the heart in its anatomical and clinical aspects is the outcome of investigations which Dr. Gross commenced several years ago in the laboratories of hte Royal Victoria Hospital and of McGill University. They formed originally part of a general study dealing with structural evolution of organs in the various age periods in its relation to normal function and disease.

It soon became apparent that in these researches Dr. Gross had, with rare industry and ingenuity, gone far beyond the original questions and that the results of his work touch upon a larger number of problems which are not only of anatomical, but also of greater clinical interest and importance. The extent of the work and the accumulated material and illustrations had also gone far beyond the original scope of a paper and it was therefore considered advisable to publish it in monograph form. This allowed a further extension and inclusion of a thorough critical review, and incorporation of previous literature—by itself a useful undertaking. The work, therefore, places before us:

First: A complete description of the arterial and venous blood supply to the normal heart with a statistical study of its variations.

Second: The blood supply to the neuromuscular system of His and its pathological and clinical significance.

Principles of Medical Treatment—By George Cheever Shattuck, M. D., A. M., Assistant Professor of Tropical Medicine, Harvard Medical School, formerly Assistant Visiting Physician, Massachusetts General Hospital. Fifth Revised Edition with contributions from the following authors: Tuberculosis, by John B. Hawes, M. D.; Acute Infections Diseases Most Common in Childhood, Edwin H. Place, M. D.; Influenza, by Gerald Blake, M. D.; Diabetes Mellitus, Benjamin H. Ragle, M. D.; Serum Treatment of Pneumonia. Henry M. Thomas, Jr., M. D. W. M. Leonard, Inc., Publishers, Boston.

The work represents an attempt to offer clearly and concisely sound principles of treatment based on known pathology The methods described are selected from those that have been tried at the Massachusetts General Hospital or in private practice. This new edition presents to the profession a thoroughly revised and a much enlarged book.

Surgical Anatomy—By William Francis Campbell M. D., Surgeon-in-Chief at Trinity Hospital. Brooklyn, N. Y.; Sometime Professor of Anatomy and Professor of Surgery Island College Hospital. Third Edition, Revised. 681 pages with 325 orig-5inal illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth $6.00 net.

This work has been given a most thorough revision both in text and illustrations, much new material having been interpolated throughout.

Dr. Campbell presents anatomic facts in terms of their clinical values. His subject he treats regionally and the 325 original illustrations are not merely isolated dissections, but regional presentations in which surrounding relations are graphically emphasized.

The work will be of value because it presents in an orderly way anatomic factors which are essential in the solution of clinical problems; because it sifts the important facts from the unimportant; because it demonstrates the application of anatomic knowledge to every-day practice.

History of Medicine, With Medical Chronology, Suggestions for Study and Bibliographic Data—By Fielding H. Garrison, M. D., Lt.-Colonel, Medical Corps, U. S. Army, Surgeon General's Office, Washington, D. C. Third Edition, Revised and Enlarged. Octabo of 942 pages with 257 portraits. W. B. Saunders Company, Philadelphia and London, 1921. Cloth, $9.00 net

In this edition Dr. Garrison has included the newer findings of investigators of ancient and medieval medicine; new matter on the doctrine and origin and transmission of ethnic culture (convergence and convection): on Chinese medicine, the history of pediatrics, dentistry, public hygiene, military medicine, and medical lexicography; on the earlier nuclei of medical education in the United States; on recent Japanese, Spanish and Latin-American medicine, and on the work of the medical departments of armies in the European war. A number of biographic sketches. with portraits have been added. So thorough and so heavy was the revision that it was necessary to reset the entire work.

Dr. Garrison's book stands today at the very fore in its field. It is authoritative, complete in its scope from earliest times to date, one-half of the book dealing with the 19th and 20th centuries

Ephraim McDowell, the "Father of Ovariotomy" and Founder of Abdominal Surgery—With an appendix on Jane Todd Crawford, by August Schachner, M. D., F. A. C. S., Louisville, Kentucky. Octavo volume of about 350 pages. Attractively printed and profusely illustrated with plates in double tone. Price $5.00. J. B. Lippincott Company, Publishers, Philadelphia and London.

Ephraim DeDowell in his crude and wild but picturesque setting, amid the daring and the coarseness of the fronties, as a country doctor practicing his profession without a diploma, singly and alone, through his ovariotomy added more to the art of surgery during the short space of his career than all the rest of the surgical world combined added in the same number of years and during the same period.

When he gave to the world his ovariotomy, he laid the cornerstone of the most wonderful and fruitful domain of surgery ever known in the human mind. He placed in the diadem of the art and science of surgery its most brilliant gem and in the eons of time becomes the direct emancipator of countless millions of human beings from protracted suffering and premature deaths. But after all this priceless service, he practically remains unknown and unhonored.

The story of McDowell's life is a story of the greatest neglect to which one of the foremost heroes of medicine and benefactors of humanity has ever been exposed. The motif of the book is to call attention to this neglect and to arouse an interest in this pioneer master of abdominal surgery.

The lessons which McDowel's ovarian surgery taught are thoroughly emphasized. The author explains how abdominal surgery gradually evolved from the facts which these lessons so clearly and firmly establish and why McDowell is credited with the title of founder of abdominal surgery

The struggle which attended the adaption of ovariotomy and which lasted for fully a half a century is vividly set forth, and persecutions to which the earlier defenders were subjected is of the keenest interest. It was not until 1861, or more than a half century after McDowell's first ovariotomy before a favorable word was said for it by a French professor in a French university. In England the situation was very little better. as it was not until a third of a century thereafter that a London hospital could boast of a successful ovariotomy

The Life of Jacob Henle—By Victor Robinson, M. D., Editor of "Medical Life." Edition limited to five hundred copies, of which four hundred will be offered for sale. Medical Life Company, 12 Mount Morris Park West, New York, Publishers. Price $3.00.

The author's latest volue, "The Life of Jacob Henle," which is the first biography in the English language of one of the makers of modern medicine—and also one of its most human and humorous figures. His inimitable letters are among the wisest and wittiest in all medical literature. His career was so romantic that it was utilized by both novelists and dramatists.

Many are no doubt familiar with Dr. Victor Robinson's previous work as the author of "Pathfinders in Medicine," "The Don Quixote Psychiatry," etc., and as the editor of "Medical Life." The author regards the present work as one of the most important things he has ever done, as he feels that every physician should be familiar with the man who bequeathed to us the true knowledge of epithelium, the rational outlook upon pathology, the germ-theory, on which we have built the corner-stone of modern medicine, and the most comprehensive study of the human body that had yet appeared.

The volume is artistically printed, bound and illustrated.

A Form of Record for Hospital Social Work, Including Suggestions on Organization—By Gertrude L. Farmer, Director, Department of Social Work of the Boston City Hospital, Boston, Massachusetts. J. B. Lippincott Company, Publishers, Philadelphia, London, Montreal.

This book on record organizing in Hospital Social Service is welcome because its author's scheme for case histories lays special stress on the thinking that must lie behind thorough social case work. Emphasis in such work quite naturally tends to fall upon doing rather than upon thinking.

The author presents a scheme of recording which has already appealed to many both as more practical, more economical, and more efficient for hospital social work than those ordinarily in use. The introduction of this form of record, the author feels, will promote standardization of hospital social work in a uniform system of case recording and the gathering of statistical data throughout the country.

Clinical Diagnosis, a Text-book of Clinical Microscopy and Clinical Chemistry For Medical Students, Laboratory Workers, and Practitioners of Medicine—By Charles Phillips Emerson, A. B., M. D., Late Resident Physician, Johns **Hopkins** Hospital, and Associate in Medicine The Johns Hopkins University; Professor of Medicine, Indiana University of Medicine, 156 Illustrations. Fifth Edition, entirely rewritten and reset. J. B. Lippincott, Publishers, Philadelphia and London.

The fifth edition is a completely rewritten book and several new sections have been added, among them those on serology, bacteriology, chemistry of the blood and of the spinal fluid.

Prolapse of Umbilical Cord.—Bermann reports seven cases in which, notwithstanding the cessation of pulsation in the prolapsed cord, the children were born alive. The fingers applied directly to the precordial or epigastric region may perceive the contractions of the heart when the heart sounds are no longer audible. The heart may be in syncope and this allows resuscitation. The vital functions seem to be merely suspended in these cases; this is more readily explained in the intra-uterine environment. He advises waiting for an hour after the heart signs have disappeared before embryotomy. The chances for the survivval of the child in these cases depend on the degree and duration of the compression of the cord, the prompt extraction of the child, and the application of measures to combat apparent death, including massage of the heart.

Etiology of Chronic Constipation.—Theysen now has a record of 200 women and 175 men with habitual constipation, and his charts of these cases show that in 86.5 per cent of the women and in 72.5 per cent of the men the habitual constipation became installed before the age of 26; in 13.5 per cent of the women before the age of 10, and in 11.5 per cent between 10 and 15. In both men and women the onset was between 15 and 20 in very nearly 30 per cent. These figures confirm, he declares, the importance of constitutional predisposition, with puberty as the occasional factor. With the constipation accompanying gastric ulcer, from reflex action, the age proportions are just the reverse: The proportion begins to increase progressively after the age of 25 and reaches its highest figure at 45. Reflex constipation thus behaves entirely different from the constitutional.

Determination of Inorganic Elements in Blood.—A method is described by Kramer and Tisdall by means of which sodium, potassium, calcium, and magnesium may be quantitatively determined on only 7 c. c. of blood. The basis of this method is deproteinization by means of trichloroacetic acid. The quantitative determination of each of these elements is then made on aliquots of the supernatant fluid by modifications of procedures recently described for serum. The concentration of these elements in 100 c. c. of human blood were as follows: sodium, from 170 to 225 mg.; potassium, from 153 to 201 gm.; calcium, from 5.3 to 6.8 m.; and magnesium, from 2.3 to 4 mg. The concentration of these elements in normal blood varies more than in normal serum. This is due to the variations in the corpuscular content of the blood.

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EDITORIAL

PROGRAM FOR 1922.

The committee on scientific work for 1922 consists of Dr. Louis Frank, President-Elect and Dr. Phillip Barbour, of Louisville, and the Secretary. Members who desire to make suggestions in regard to the program are requested to write to Dr. Barbour, Francis Building, Louisville.

The committee is attempting to arrange the program so that it will appeal to every practicing physician in Kentucky. There is no other meeting so important to the doctors of this state than the annual meeting of this organization. Paducah physicians are exerting every effort to make this meeting one of the very best.

SPECIAL FARES TO THE A. M. A.

The Southwestern Passenger Association announces that there will be available for members of the American Medical Association who go to St. Louis for the annual session a special rate of one and one-half fares for the round trip, going and returning the same route. To secure this rate, purchasers are required to present an identification certificate. These certificates will be available within a short time. One certificate will enable the member to purchase tickets for himself and for dependent members of his family. Tickets will be sold on the presentation of these certificates from May 16 to 24 inclusive. They must be validated at St. Louis during the days of the session, and the return trip must be completed by June 1, 1922. The minimum excursion fare on presentation of this identification certificate is $1. Members and fellows may secure these certificates by writing the secretary of the association, Dr. Alexander R. Craig, 535 North Dearborn Street, enclosing a self-addressed, stamped envelope.

The Central Passenger Association, the Trunk Line Association, the Southeastern Passenger Association and the Western Passenger Association have also authorized similar special fare tickets from points in their territories.

The local Committee of Arrangements reports that inquiries are being received and that reservations have been recorded daily since that time. The St. Louis hotels and the Convention Bureau are cooperating with the Local Committee of Arrangements in a satisfactory and helpful manner that assures comfortable accommodations to those attending the annual session. The Local Committee of Arrangements, however, requests that, whenever possible, arrangements shall be made for doubling up so that every one who goes to St. Louis may be assigned to comfortable lodgings. Reservations should be made by communicating directly with the hotel at which the member desires to stop. If satisfactory arrangements cannot be made in this way, write to the chairman of the Local Committee on Hotels, Dr. Louis H. Behrens, 5325 Pine Street, St. Louis.

MORTON USURPS CRAWFORD LONG'S PLACE IN THE HALL OF FAME.

The Southern Medical Journal says in a recent issue:

"Through the courtesy of Dr. Samuel S. Briggs, of Nashville, the Editor of the Journal has had the privilege of reading a number of books and reprints that had been assembled by his distinguished father, Dr. W. T. Briggs, a short time before his death, in which are set forth the claims for the discovery of anesthesia by Wells, Jackson, Morton and Long. The controversy among the three New England contestants for the honor and for remuneration by Congress for discovering anesthesia was one of the bitterest in the annals of medicine. The "war of pamphlets," what would now be called propaganda, as carried on by Wells, Jackson and Morton, and their friends and relatives, make interesting reading after more than half a century.

"The Editor of the Journal has tried to read without prejudice the evidence as presented by various affidavits of the friends of each, and the facts seem to be as follows: Wells first produced nitrous oxide anesthesia for the purpose of extracting teeth in 1844[1]; Jackson suggested to Morton the use of ether in dentistry and surgery in 1846[2]. Jackson explained to Morton the properties of sulphuric ether and showed him how to use it on a towel. Soon afterwards Morton[3], giving Jackson no credit for the information without which he could not have used ether, persuaded a group of surgeons in the Massachusetts General Hospital to allow him to etherize some of their operative patients; and the surgeons published the fact that the long-dreamed-of surgical anesthesia had been discovered.

"Had the three contestants known that Crawford W. Long, of Georgia, could present indisputable evidence that in 1842 he had removed a tumor from the neck of James Venable while under the influence of ether, and that he had performed several other surgical operations on patients whom he had anesthetized before any one of them claimed to have used an anesthetic[4], it is probable that they would not have wasted so much time and money in trying to establish their claims, with the hope of securing a reward of $100,000 from Congress for being a benefactor to mankind.

MORTON THE MERCINARY EXPLOITER OF ANESTHESIA

The facts as presented by the friends of Wells and Jackson appear to place Morton as a glory-grabber equal to Dr. Cook of Arctic fame. They also make it plain that Morton's chief purpose was to exploit for private gain the discovery of one of the greatest boons to mankind. Immediately after using ether in November, 1846, Morton patented it under the trade name of 'Letheon,' which patent, by the way, Jackson seems to have good ground for asserting was obtained by fraud[5]. A few weeks later Morton employed Daniel S. Blake to travel through New York and the New England states selling the patent right to dentists and surgeons to use 'Letheon.'"[6]

"Morton was modest in his terms for the use of a drug that had been known for many years prior to its employment as an anesthetic. In a circular dated November 25, 1846, Morton generously offers the following terms to dentists for the rights to his invention and apparatus for producing ether anesthesia:[7]

"In cities of 150,000 inhabitants, $200 for five years.

"In cities of 50,000 and less than 150,000, $150 for five years.

"In cities of 40,000 and less than 50,000, $100 for five years.

"In cities of 30,000 and less than 40,000, $87 for five years.

"In cities of 20,000 and less than 30,000, $75 for five years.

"In cities of 10,000 and less than 20,000, $62 for five years.

"In cities of 5,000 and less than 10,000, $50 for five years.

"Surgeons' licenses for five years, 25 per cent on all charges made for performing operations wherein the discovery is used, etc.

"What would the Council on Pharmacy and Chemistry of the American Medical Association have to say if 'Letheon' were put on the market today? What would some of our surgeons do if they had to give 25 per cent of their fees for the privilege of using ether? Where would the anesthetists come in if the surgeons had to give up one-fourth of their fees for operations on patients under ether? Morton seems to have been the first and the arch fee-splitter.

MORTON, THE CHARLATAN DENTIST

"That Morton was untruthful as well as mercenary is shown by the fact that under his signature in the *Boston Atlas* he advertised falsely to the public.[8]

"The subscriber, having returned from Washington, begs leave to give notice to his friends and patients (Congress having decided the ether controversy in his favor), that he is now able to devote his attention to the various operations in dental surgery, particularly to the administration of ether. Persons contemplating having artificial teeth inserted are assured that nothing can surpass the excellence of his operations in this department.

"W. T. G. MORTON, M. D.

"Congress never acted upon Morton's claims. The committee, by a vote of 3 to 2 reported his bill favorably, but it was never passed. Such blatant advertising of fraudulent claims prove that Jackson was justified in calling Morton an 'unprincipled charlatan.'

"The book published by Senator Truman Smith, of Connecticut, setting forth the claims for the honor of the great discovery of anesthesia by Wells is particularly severe on Morton, and Senator Smith "assumed full responsibility for his statements.' Senator Smith says that 'Dr. Wells perished by his own hand in a paroxysm of insanity, induced as his friends believe, by the attempt of Morton to filch from him the fame of his great discovery.'[10] Senator Smith asserted that Morton knew of Wells' use of nitrous oxide in 1845. Morton had practiced dentistry at Farmington, nine miles from Hartford, for several years and had visited that city in 1845. Morton had studied dentistry under Wells in 1841 and 1842. Wells had also demonstrated the use of nitrous oxide in 1845 in Boston and suggested at the time that ether might be used for an anesthetic.[11] It will be recalled that Morton claimed to be not only the first to use ether, but 'the discoverer of anesthesia.' From the affidavits published by Senator Smith it is clear that Morton knew all about Wells' use of nitrous oxide in 1845, a year before he used ether.

"Senator Smith also charged that Morton maintained in Washington an expensive lobby, why dispensed 'champagne, cigars and oyster suppers' to Congressmen and Senators.[13] Senator Smith further charged that Morton used stolen money, about $50,000, furnished him by one Tuckerman, a defaulter, who expected to be reimbursed by Morton when he received the money which he hoped to get from the Government.[14]

"Morton would not have been so severely criticised had he not been so mercenary. Among other efforts to profit by a scientific discovery, for which he deserves little credit, was to have introduced in Congress a bill granting him $100.000 for the patent rights on 'Letheon' for the Army and Navy.[12] Think of a man who wanted pay for using an agent to alleviate the suffering of men wounded in the service of their country.

"The Editor has also read carefully the claims of Morton. His son, Dr. William J. Morton, of New York, strives hard to prove that his father was the real discoverer of anesthesia and that all the other claimants were imposters.[15] He makes as good a case as possible by perverting the facts, and many who have heard only Morton's side are convinced that to him belongs the honor. Indeed, the Morton propaganda has 'fooled many people a part of the time,' and to such an extent that by a vote of the 'intellectuals' of the United States he has been given a place in the Hall of Fame as the discoverer of anesthesia. That the histories and the encyclopedias, with few exceptions, have been misled by Morton's propaganda is the reason he is generally given credit for having been the first to use anesthesia. Few have taken the trouble to get the facts of the case.

HALL OF FAME SHOULD INVESTIGATE MORTON'S CLAIMS

It is never too late to right a wrong, and since Morton has been given a place in the Hall of Fame, it would seem that those in charge of that institution should appoint a committee to investigate the matter to determine if Morton deserves the honor, or if it has been given through misrepresentation that has been carried in histories and encyclopedias for half a century. The Editor of the Journal believes that an unprejudiced committee would find that Morton was an impostor and a mercenary promoter, and that to Crawford W. Long belongs the honor of discovering surgical anesthesia.

The presentation of the claims of Dr. Crawford W. Long as the discoverer of anesthesia by Dr. Marion Sims should be read by those who desire to know the truth about the matter. Sims[16] gives a judicial statement of the relative claims of Long, Wells, Morton and Jackson. His conclusion was that there can be no doubt of the fact that the honor belongs to Long.

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1. Data on anesthesia prepared by Hon. Truman H. Smith, United States Senator from Connecticut, published by John A. Gray, New York, 1859.
2. Congressional Report on ether discovery by Stanley and Evans, 1852.
3. Ibid.
4. Southern Medical and Surgical Journal, New Orleans, December, 1849, statement by Dr. Long with affidavits of Charles Venable, et al.
5. Congressional Report, Stanley and Evans, 1859, p. 41.
6. Ibid. p. 27.
7. Ibid, pp 33-34.
8. Ibid, p. 32.
9. Anesthesia, published by John A. Gray, New York, 1859.
10. Ibid Introduction, p. 11.
11. Ibid—many affidavits.
12. Ibid, p. 130.
13. Ibid, Introduction, p. 5.
14. Ibid, Introduction, pp. 5-6.
15. "The Invention of Anesthetic Inhalation or Discovery of Anesthesia," by William J. Morton. D. Appleton & Co., 1880.
16. Virginia Medical Monthly, 1882.

Relation of Surgical Technic to Gastrojejunal Ulcer.—Roeder emphasizes that: (1) the so-called gastrojejunal ulcer is very likely the direct result of operative procedures; (2) every effort should be made to simulate Nature as much as possible by leaving the mucosa superabundant with a free blood supply; and (3) in the technic of gastro-intestinal surgery, the mucosa should always be sutured separately close to the edge. No sutures should be passed through all three coats at one time since such a procedure strangulates the mucosa, later immobilizing it with scar tissue, which in addition shuts off the blood supply.

D'HERELLE PHENOMENON.

The Phenomenon D'Herelle, according to Doctor Wollstein is a lytic or dissolvent action occurring between a bacterium causing an infection in an animal and a substance elaborated in that organism against it, probably originating in the leucocytes and tissue cells in response to the stimulus of the metabolic products of the invading bacterium. This lytic antibody is called a bacteriophage. This lytic bacteriophage seems to be comparatively non-specific. A bacteriophage for colon bacilli will also dissolve dysentary or typhoid bacilli.

The most unusual and surprising thing about the bacteriophage is that if a fluid bacteriophagic for colon bacilli is allowed to dissolve dysentariae bacilli and the resulting solution filtered free of dysentariae bacilli the filtrate will still be bacteriophagic for bacilli dysentariae after being used a great number of times.

The use of the bacteriophage substance shows dysentariae bacilli to be composed of two strains, one sensitive to the action of the bacteriophagic substance, growing very irregularly on culture media.

The sensitive bacteria gradually die out by the action of the lytic substance they carry and the resistant bacteria only are left.

It is possible that strains of bacteria resistant to lysis are responsible for fatal outcome of bacterial disease in men and other animals. Theoretically the administration of lytic fluid should rid the body of most of the infecting organisms and only if completely resistant bacteria remain in large numbers would be outcome of the disease a fatal one."

Now, what is the nature of the bacteriophage?

D'Herelle says, "that the bacteriophage is living matter and can be nothing less than an ultramicroscopic parasite of bacteria."

Maisin asserts that, "the bacteriophage is chemical substance colloidal in nature, does not pass through a dialysing sac an dis precipitated by ammonium of sulphate."

With reference to the question of transmission of hereditary, susceptibility, or insusceptibility to bacteriophagic substances. Grata says, "that the resistance of bacilli coli to the agent does not offer an example of inheritance of acquired characteristic but is simply an instance of persistence of certain members of a culture capable of resisting the unfavorable conditions imposed by the circumstances of the experiment."

SCIENTIFIC EDITORIALS

ACUTE ABDOMINAL PAIN.

By "acute abdominal pain" is meant a sudden developing intensely painful sensation within the abdomen of an individual who has prior thereto apparently been in a state of normal health. The pain may be either continuous or intermittent in character, depending largely upon the underlying etiologic factor responsible for its production. And it is noteworthy that the lesion which gives rise to acute pain may be either surgical or medical in its significance, i. e., operative intervention may be immediately demanded as a life-saving measure, or rest and corrective internal treatment may suffice. The importance of intelligent co-operation between surgeon and internist under such circumstances cannot be overestimated.

Practically every hollow or solid intra-abdominal and intra-pelvic viscus may be concerned in the production of acute abdominal pain. From above downward the principal viscera and sites of pain may be stated as:

(1) *Lungs*: In the beginning of pneumonia (especially in children) there is frequently noted acute abdominal pain known as "referred pain." Within twenty-four to thirty-six hours typical physical signs of pneumonic inflammation appear which could not be earlier elicited.

(2) *Stomach and Duodenum*: Intense abdominal pain occurs in gastric and duodenal ulcer, in carcinoma, also in gastric lues, which is more common than ordinarily supposed, and in so-called "gastritis" from dietary errors. Gastric crises develop suddenly and persist a definite time with or without treatment. Patients thus suffering have been subjected to celiotomy by prominent surgeons who were greatly surprised that no intra-abdominal lesion was discovered.

(3) *Small Intestine*: Adhesion, bands, kinks, diverticula, volvulus, intussusception, hernia, malignant and inflammatory lesions, with impending fecal obstruction, usually give rise to acute pain. The fact is worth remembering that where obstruction has already supervened pain is always noted proximal to the point of occlusion.

(4) *Large Intestine*: Inflammatory, malignant and obstructive lesions involving the cecum, the ascending, transverse and descending colon, the sigmoid and rectum, may be responsible for the production of acute abdominal pain.

(5) *Liver and its Adnexa*: Hepatitis, hepatic abscess, cholecystitis with or without

cholelithiasis, choledochitis and cholangitis are frequent causes of acute abdominal pain. The so-called "gallstone colic" is a familiar type. Subphrenic abscess may be legitimately included under this heading.

(6) *Kidneys and Ureter*: Renal and ureteral lesions of every character produce intense pain. Calculi, resident either in ureter or kidney, ureteral kinks and strictures are common causes. Instances have been recorded in which disease of the suprarenal gland caused acute abdominal pain associated with vomiting and thus led to surgical intervenion.

(7) *Pancreas and Spleen*: Pancreatitis and pancreatic cysts, likewise splenitis (rare) and splenic trauma from external violence, may be the cause of severe abdominal pain. Rupture of the spleen may occur from slight trauma without external evidence of injury.

(8) *Uterus, Ovaries and Oviducts*: When a female complains of acute abdominal pain the attendant usually assumes that lesions involving the uterus, ovaries or oviducts are responsible therefor, but in this he may be mistaken. It is true, however, that pain is often due to salpingo-oophoritis, uterine tumor or ectopic gestation.

(9) *Urocyst*: The urinary bladder is oftentimes responsible for the production of acute abdominal pain. Vesical calculi and neoplasms of certain types with consequent urocystitis are common in both sexes. In the male the prostate gland must also be considered.

(10) *Appendix Ceci Vermiformi*: Last, but by no means least, must be mentioned that insignificant and functionless vestigial remnant familiarly called the appendix, about which more has been written during the last two or three decades than any organ embraced within the human economy. While it is probably true that appendicitis is more frequently responsible for acute abdominal pain than lesions of all the other intra-abdominal and intra-plevic viscera combined, the pertinent fact must not be permitted to pass unobserved that many normal appendices have been surgically extirpated because of erroneous diagnoses.

The differential diagnosis of actue pain involving the various viscera will be considered in a future contribution.

FRANK T. FORT.

BUTYN, THE NEW LOCAL ANAESTHETIC.

For nearly a year past I have been using Butyn, the new local anaesthetic, first in selected cases, then in the cases which came to the clinic at random. I am very much pleased with the results and can heartily endorse the report of the committee, which consists of Dr. A. E. Bulson, Chairman, Ft. Wayne, Ind.; Dr. Wm. Zentmayer, Philadelphia, Pa.; Dr. Edgar S. Thompson, New York; Dr. H. Maxwell Langdon, Philadelphia; Dr. Harry S. Gradle, Chicago.

My attention was first called to this drug by the manufacturers, Abbott Alkaloid Company, of the Abbott Laboratories, Chicago, Ill., and from letters received from Dr. H. S. Gradle, Dr. George Suker and Dr. A. E. Bulson. I obtained a supply and used it freely, and I believe in this new anaesthetic we have a most valuable adjunct to our armamentarium. One great advantage which it possesses is its lack of toxicity and it does not produce eschemia, or dryness of the cornea. The results in the deeper operations of the nose, such as removal of the turbinates and sub-mucous resections has been more satisfactory because there is less reaction. In eye work it is to be used as we use cocaine, every three or four minutes for four instillations, then waiting four or five minutes after the last instillation. For producing anaesthesia for nasal operations, the saturated cotton with two or five per cent solution, preferably the latter, produces satisfactory anaesthesia in ten or fifteen minutes. I have noted no evidence of toxemia or unpleasant reaction. I have not tried it in infiltration.

1. It is more powerful than cocaine—a smaller quantity is required.
2. It acts more rapidly than cocaine.
3. Its action is more prolonged than that of cocaine.
4. It is less toxic in the quantity required.
5. It is slightly antiseptic.
6. It is less irritant than cocaine.
7. It causes no dilatation of the pupil.
8. It produces no drying effect upon the eye.
9. It can be boiled without decomposition.
10. No narcotic blank is required.

J. A. STUCKY.

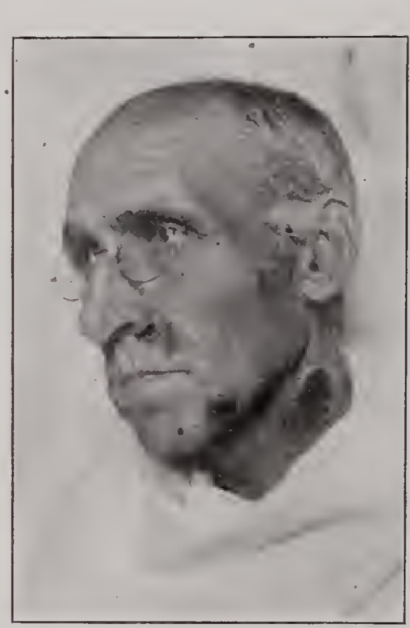
The Structure of the Cell.—Policard says there is no need for discouragement because we have had to discard so much of what was supposed fully established in cytology twenty years ago. Very little is left of all the research on the morphologic science, cystology is becoming a physiologic and chemical science, as he explains.

ORIGINAL ARTICLES

BLASTOMYCOSIS: SYPHILIS. CASE REPORTS.*

By WILLIAM J. YOUNG, Louisville.

The two patients to be exhibited are from the clinic of Dr. I. N. Bloom in the city hospital. The first is a male, aged fifty-five years. In January, 1921, according to the history he gives us, a skin lesion was noted on his right thigh. This was removed by a so-called cancer doctor with cautery, followed by caustic with a very good result. The next lesion appeared on the inner aspect of his left forearm. This is still present. Shortly afterward a similar spot appeared on his left leg, then one on his neck, followed by others in various parts of his face. Various caustics have been used on these lesions, but until the present time no appreciable benefit has been secured.



BLASTOMYCOSIS'

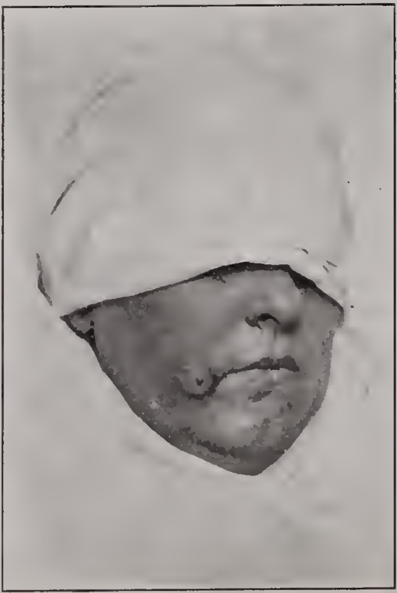
We have made in this case the clinical diagnosis of blastomycosis, which I believe has been confirmed by Dr. Stuart Graves. It will be noted the patient has a congenial defect of development in one lower extremity. This, of course, has no reference to the condition for which he is exhibited. The lesions present a typical picture of blastomycosis.

The treatment is large quantities of iodide of potassium internally and either the actual cautery, Roentgen-ray or radium externally. The great trouble in treatment is that the lesions are prone to recur.

The prognosis in blastomycosis is usually good. I have seen splendid results secured by Roentgen-ray exposures. A simple erythema dose is applied to each lesion. In connection with this method I have always given large doses of potassium iodide. Radium applied to the local lesion would be equally effective, but it is difficult to cover such a large areas evenly; that is, not overlap or underlap, with the small amount of radium that we have.

I am going to apply radium tomorrow in a case of blastomycosis. The lesion has been subjected to actual cautery with apparently a very good result. However, there remains an area the size of a silver twenty-five cent piece to which radium will be applied. I think radium is distinctly preferable where the lesions are small in size. I feel more certain in the use of radium than with the Roentgen-ray, especially when the latter is given in unfiltered doses. In most instances we can be absolutely certain as to the amount of radiation when radium is used, but with the Roentgen-ray or electric current the amount cannot be accurately determined. I, therefore, prefer radium in all cases of this kind where the lesions are small in size.

The second patient is a female, aged about thirty years, who came to the clinic a few days ago. She gave the history that about six weeks prior to that time what seemed to be an ordinary pimple appeared on her cheek. This gradually grew larger and today presents an uneven raw surface with slight



EXTRA-GENITAL CHANCRE

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*Clinical report before the Louisville Medico-Chirurgical Society.

oozing and a great deal of induration around the margins. One week ago she had a macular eruption over the body. The diagnosis was easily made because of the presence of an unheeded lesion and at the same time a macular eruption or secondary lesion.

I am exhibiting this patient to call attention to the fact that in about 10% of cases of syphilis the chancre is extra-genital. Before entering the clinic she was seen by four or five different physicians and not one of them suggested that the sore on the cheek might be the primary lesion of syphilis. .

The patient was given a dose of arsphenamin in the clinic this afternoon, and she now has a typical Herxheimer reaction. We gave her some mercury yesterday, which is said to prevent the Herxheimer reaction, but it did not do so in this instance. In cases of this type we are in the habit of administering asphenamin twice per week instead of once per week in order to cause disappearance of the symptoms as soon as possible.

The macular eruption appeared in this case five weeks after the development of the primary lesion, according to the history obtained. The average time I believe is about four weeks. The eruption was absolutely typical.

The principal reason the diagnosis of extra-genital chancre is infrequently made is that the physician is not on the lookout for primary syphilis lesions elsewhere than about the genitals.

NORMAL MENOPAUSE.*

By W. L. Mosby, Bardwell.

The subject of this paper is not of my choosing, nevertheless it is one of vast importance form a scientific point of view to the profession of medicine and surgery as well, and of practical (protective viewpoint) importance to the laity as victims of the complications and sequela of the abnormal conditions that may arise from nature's inability to properly guide the waning function to its intended destiny of quiescence, the menopause

Normal, as applied to this essential function, implies an abnormal and without a possibility of the abnormal, interest at once would fail to attract our attention, just as in fracture or dislocation in an extremity our attention is invited to the normal limb for a critical comparison, so we may only know the abnormal by a knowlege of the normal.

The term "sickness," or "monthly sickness," should never be used to designate this important normal function, and when this ordeal is attended with unusual pain, hemorrhage or physical distress it at once becomes abnormal and should be recognized and treated as such. This phase of the subject will be properly treated by my good friend, Dr. Gilliam.

Menarche and menopause are terms that respectively designate the beginning and the end of the period of reproductive activity, the "Alpha and Omega" of menstrual life, and are more commonly referred to as "puberty" and the "change of life," this active reproductive life cycle usually continues for slightly more than thirty years.

The average age of beginning menstruation in this country is approximately 14.3 years, and the average age of decline is about 47.26 years, giving a relative period of reproductive activity of slightly over thirty-two years.

Climate seems to exercise an inhibitory and stimulating influence on the menstrual life function, as heat operates to hasten sexual organ development and their functioning and cold is equally potent to retard the same.

Race may also be well considered as a factor in the early establishment of the menstrual function, aside from climatic conditions, as the Esquimaux of Alaska, where severe cold should operate to retard a normal early sexual functioning or maturity, have their beginning at an average age of thirteen years.

Heredity has a place in determining the age at which functional maturity should effect menstruation, so it is well to ascertain at what age the mother and sisters, if any old enough, begun this cycle of life.

An early appearance in life of this function in woman indicates a vigorous sexual development and a probably late cessation of same, unless local conditions exist that may be responsible for the perversion of an otherwise normal condition.

The average duration of a normal "flow" in healthy subjects, is from four to six days, with an average estimated blood loss of two to eight ounces, and a very pronounced deviation from this approximate normal may well be regarded as pathologic (suspected) unless an investigation of the habits and conditions leads us to conclude otherwise.

In a large number of women observed for the purpose of estimating the average interval between the menses it has been found to be about twenty-eight days from beginning of flow to return of next period.

The cause for delayed, retarded or any deviation from what should be regarded as a normal condition for those entering this phase of woman life should receive careful attention to ascertain and remove the cause when possible, among which may be, locally, atresia, imperforate hymen, faulty development of uterus and ovaries, of constitutional conditions may exist that will prevent this otherwise normal function, such as chlorosis, phthisis, congenital syphilis and other debilitating diseases.

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*Read before the joint meeting of the Carlisle and Graves County Medical Societies.

We can only know the abnormal by a study and knowledge of the normal, so it has been my purpose to briefly outline "Nature's role" that we may be better prepared to treat any deviation therefrom. The precocious forms of menstruation will be attended by an early puberty and other evidence of physical development of the genitalia, breasts and manifestation of a capacity to reproduce and the presence of sexual desire, etc.

Having briefly elucidated some observations connected with the usual normal menstruation from its inception on to its fuller development, continuation throughout active life and on to the subject proper of my paper, *the menopause,* or major crisis in women's life where there is a cessation of the function that characterize the gentler and fairer sex and where there is a change not only of the anatomy and physiologic functioning of her generative organs, but of her social, moral and, to some extent, intellectual character as well.

As this function declines there is a progressive tissue atrophy of the genital organs, beginning with the appearance of the menopause and continuing with the advance of senility. The ovaries and tubes atrophy and the uterus diminishes in size so that the vaginal cervix may completely disappear, the vagina, external genitalia, including vulvo-vaginal glands and mammary glands are affected by the retrograde tissue metamorphosis that are a part of and sequela to this grander change in woman's life.

She is reminded now that the "fires of youth have burned out;" she soliloquizes for the past, yet she is joyous and well prepared by experience for the sublime duties of the future. "The clock which was wound up at fifteen has run thirty years, sounding its four weekly cycle and regulating the affairs of her domestic and social life," has now run down, the *libido sexualis* is gone from her and her relations to home and society has changed, she is freed from the thoughts and burdens of maternity, she gives more time to family, friends and society, thereby enlarging the realm of her happiness and usefulness to others.

Simultaneous with or soon after the changes herein described there comes a change in physique, the abdomen becomes enlarged by the deposit of fats in the mesentery and omentum, a change which may extend to the entire musculature.

In a completely normal change there is nothing to fear nor nothing to treat, yet it is the crucial time in woman's life and she should be fully instructed as to what is normal and what should have her family physician's attention. The perfectly normal menopause may attract very little notice, except a diminution of the flow or a lengthening of the accustomed interval, a menstrual failure under approximately normal conditions otherwise, and the slightest deviation from this expected rule should call for a very complete examination to ascertain cause for same.

One to three years is usually required for this change to complete and safely establish the climacteric, and during this important epoch every woman should be under careful medical supervision lest an abnormality occur, the import of which she would not understand.

Every excessive flow or late return after apparent completion of menopause should be carefully investigated to know whether malignancy is present or not, the well known triad of symptoms, discharge, hemorrhage and pain, should be constantly in mind, yet we should seek to know this before all these symptoms are in evidence. An early diagnosis is essential to successful life-saving procedures if cancer be present. Should we resort to the custom of removing "scrapings" from cervix, body or fundus uteri, we must carefully seal or close wound to prevent further infection of tissues by opening new avenues for absorption. Dr. Henry Schmitz condemns this procedure. The laity should receive proper instruction. at this momentous time to protect them from dangers of which they have no knowledge. The minor ills or symptoms arising from physiologic decadence of a now obsolete function, should receive appropriate consideration to guard and guide our patient to the dawning of a brighter and, for her, happier day, where a knowledge that there will be no more babies to nurse and care for, she may enter a well earned, restful period of life which nature and experience have so nobly and well qualified her to occupy.

Normal conditions have no pathology and without a definite pathology there is no indicated, specific treatment, so I may summarize the treatment by saying meet well defined indications and you will not go far wrong.

ABNORMAL MENOPAUSE.*

By H. A. Gilliam, Melburn.

As the normal menopause has been given you in another paper there will be no need for me to mention it only by way of reference.

The age at which it occurs varies all the way from thirty to fifty-five or sixty, depending upon the age at which menstruation began. Any prolongation of the menses after this period or age should be looked upon with suspicion and call for close physical examination. In a great proportion of them will be found to have some pathological condition, and the majority of these pathological conditions will be found to be cancer of the uterus. In fact, some authors claim as many as nine out of ten. Other causes for the prolongation of menstruation are flexion, version, fixation, lacerations, syphilis, endometritis, tubal and ovarian inflammatory condition.

Any increase in amount or frequency of the flow at or beyond age limit for the climateric should be viewed with suspicion. Cancer is our greatest dread. If no other cause can be found, the womb should be curetted and examined microscopically. It is only by an early diagnosis and early treatment that we may hope to cure cancer cases. The laity must be taught the significance of such symptoms. At present they are ignorant along this line and many women have gone past the stage of a possible cure because they did not know what a vaginal discharge, bloody or otherwise meant. I believe that nine women out of ten will not consult their physician until it is too late. The people must be educated along this line.

Most women have a great train of nervous symptoms at this stage, which will not be enumerated here, as they have been mentioned under the head of normal menopause. But I want to say that any healthy woman should go through this period with but very few noticable symptoms. The cause may be concerned with the generative organs or with some other portion of the body. It may be local or general. If local, such as lacerations, they must be repaired, endometritis and pelvic inflammation treated by the most appropriate methods, versions, flexions, prolapses and so on by suitable pessaries, preceded by tampons and hydrotherapy or by surgery, as the case will demand.

Endocrinology or gland therapy in the treatment of the nervous type may prove of value to same, while in others it is worthless. Corpus luteum, extract of ovary, pituitrin and thyroid extract may be mentioned along this line. Such drugs as valerian, strychnine or the bromides are employed with good results.

For the great class of patients who have menorrhagia and will submit to no local treatment, or in whom we can find no cause, we must reply upon such drugs as ergot, stypticin, hydrastis or pituitrin. Tamponing some times only will produce results.

I have not tried to cover this subject minutely. But I want to emphasize the importance of educating the laity of the importance of consulting a physician when they have any symptoms whatever to come up at the time of the climateric. For by this way alone will we ever be able to check the increase of cancer.

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*Read before the joint meeting of the Carlisle and Graves County Medical Societies.

OBSERVATIONS ON THE DIAGNOSIS AND TREATMENT OF TOXIC GOITER.*

By L. Wallace Frank, Louisville.

The great triad of symptoms of toxic goiter are: Tachycardia, nervousness and muscular weakness. Consequently when any of these are present an examination of the thyroid should be made in order to ascertain whether or not this important organ may be the cause.

We have seen several patients in whom thyroid disease had never been suspected, and yet in each the pulse rate was decidedly over 100 per minute. Such a case is that of Mrs. S., who was referred to us by Dr. Morris. She gave a history of palpitation, shortness of breath, marked tachycardia and nervousness, beginning twenty months ago. She was treated in different sanitoria for various disorders and was confined to bed on account of weakness and extreme tachycardia on the least exertion, the pulse rate varying from 110 to 130 per minute when the patient was quiet. Dr. Morris at once examined the thyroid and finding it enlarged made the diagnosis of hyperthyroidsim. In this case the basal metabolic rate was 28% above the normal and there was a positive reaction to the adrenalin test.

Following operation, in which a right lobectomy and partial left lobectomy was done, the patient began to improve, and within twenty days the pulse rate had declined to 80 per minute. The tissue removed was examined microscopically and sections showed hyperplasia of the cellular elements, the pathologist reporting the case as one of hyperplastic parenchymatous goiter.

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*Read before the Louisville Medico-Chirurgical Society.

In those individuals in whom there is well marked exophthalmos associated with the symptoms previously mentioned the diagnosis is evident. However, exophthalmos is present in only a small percentage of toxic goiters. In many there are no eye symptoms, or the only one may be a slight stare which is practically always associated with some widening of the palpebral fissure, the so-called Stelwag or Dalrymple sign. This can best be determined by noticing the lines of the lids in reference to the cornea. Of the other eye symptoms that of lagging of the upper lid when the eye is rotated downward, von Graefe's sign, is the most important.

The presence of an enlarged thyroid is not essential to make a diagnosis of hyperthyroidism. Some of the most toxic goiters are the very small, hard, granular thyroids. At this point we would like to emphasize the importance of examining the patients fluoroscopically for substernal extensions. Occasionally one finds that the thyroid enlargemen has taken place in the thorax rather than in the cervical portion of the gland. In other cases we may find an associated thymic enlargement.

It is our experience that while the basal metabolic rate gives us an idea as to the severity of the intoxication, there are two symptoms which when present give us equally as good information. We have reference to diarrhea which occurs as a rule only in the more severe cases. The other symptom, seen in the male, is that of spontaneous seminal emissions, and this we have observed in one patient who had three to four emissions daily. This man was later subjected to a unipolar ligation under gas-oxygen-local anesthesia, but died within twenty-four hours due to post-operative reaction and cardiac failure.

That any variation in the blood picture is indicative of the severity of the intoxication is not verified by a study of our cases. It was formerly the accepted view that in the more severe intoxications there was an increase in the lymphocytes. However, the study of a large series of cases does not substantiate this view which was first advanced by Koeher.

During the past few years the literature of hyperthyroidism has contained numerous reports of studies of basal metabolism. There is no question but in toxic goiters there is an increase in the normal rate of oxygen consumption. And the determination of this rate has been widely used as a method of diagnosing toxic goiter and of differentiating cases of thyrotoxicosis from conditions closely simulating it.

A study of our own cases reveals the fact that in all diagnosed clinically as toxic goiter there was a definite increase in the rate of metabolism. In one where we had made a diagnosis of colloid goiter, which was proven pathologically, we found that the metabolic rate was 55% above the normal (Benedict apparatus). This we could not explain and had we depended entirely on the basal metabolism to make the diagnosis we should have erred. Consequently we feel that while an elevation of the metabolism in a suspected toxic thyroid case strengthens the opinion, nevertheless the diagnosis should be made on the clinical symptoms and findings.

There is no question in our mind but the study of the basal metabolism is a most important means of investigation in cases of thyrotoxicosis. We believe that in a measure the severity of the intoxication can be gauged by this method. However, we do not believe the operability of a case should be determined by the amount of increase in the basal metabolic rate. Some patients with markedly increased rates, but with a good myocardium, can be successfully treated by surgical means, whereas others with only a slight elevation in the rate of metabolism, but with a heart muscle weakened by the disease, cannot safely undergo operation. And we believe that up to the present time at least the clinical symptoms and the experience of the surgeon are better guides to the method of treatment than metabolic study.

The adrenalin test: There is a great deal of controversy as to the value of the epinephrin (adrenalin) test, the so-called Goetsch test. In studying our own cases we find that the adrenalin test was positive in every case which was clinically diagnosed as toxic goiter except two. One of these patients, a male, had all the characteristic symptoms of hyperthyroidism and a basal metabolic rate of 39% above the normal; the other, a female, had a typical history with exophthalmos, and pathologically a very hyperplastic goiter. We obtained no positive responses in patients having colloid or non-toxic adenomatous goiters. As a result of our own observation we believe that by this test the degree of intoxication can fairly accurately be estimated, and, what is much more important, the operability.

Treatment—Of all diseases hyperthyroidism is the one in which the patient profits most by close co-operation between surgeon and internist. Rest and proper hygiene are very important and underlie all therapy of thyrotoxicosis. We believe that the treatment of this condition is essentially surgical.

Although the cause of the hyper-activity of the thyroid may be oral or tonsillar infections, or may have its origin in the colon, as Mr. Lane believes, nevertheless the pathology is located in the thyroid gland and by its removal the patient is cured or greatly benefited. We do not desire to discuss the various surgical procedures, suffice it to say that all have their value, but when possible thyroidectomy is the treatment of choice. Remissions occur with X-ray treatment, just as they do without treatment. It has been our experience that the patient improved so long as X-ray treatment was continued, but when it was stopped recrudescence soon took place.

The mortality of the surgery of toxic goiter varies with the types of cases operated and with the experience of the surgeon. We have rejected but one patient who had had toxic symptoms for years and was when seen suffering more from myocardial disease than from her thyroid. We have operated (and cured) several cases which had been told by other surgeons that they were inoperable and that nothing surgical could be done. Among the twenty-five cases forming the basis for this paper there was but one death, and we feel that could the patient have been in different surroundings the result might not have been disastrous.

DISCUSSION:

John W. Moore: One of the patients mentioned by Dr. Frank had been to many physicians for diganosis. Only one medical man advanced the diagnosis of hyperthyroidism. The family physician referred her to me for basal metabolism. The rate, as I remeber at present, was plus 27%. She was operated by Dr. Frank. Three months after the operation she returned to have the metabolic rate determined. It was then minus 4%.

In regard to the value of basal metabolic test in thyrotoxicosis: The metabolic rate is of the greatest value in differential diagnosis of neurosis simulating hyperthyroidism. Conditions pointed out by McCaskey, such as psychoneurotic disturbances; circulatory disturbances, as tachycardia, cardiac myasthenias, and certain arrhythmias, fine tremors, hyperidrosis, loss of weight, etc., can be definitely differentiated from hyperthyroidism by the basal metabolic rate determination. Then, too, in cases of early tuberculosis which show symptoms of vagatonia and sympathesicotonia, a normal rate is of great diagnostic value.

The determination of the metabolic rate during the course of treatment of hyperthyroidism is likewise of great importance. In brief, it may be said the rate determines whether the method of treatment is beneficial, or no value, or even harmful. Unfortunately, the rate does not tell us when the patient is a good operable risk; this must be left to surgical and medical judgment.

As to the value of the Goetsch test in early hyperthyroid conditions, like the sugar tolerance test and the utilization test, there are too many conditions that give positive results for it to be of much aid in diagnosis.

Cuthbert Thompson: I enjoyed Dr. Frank's paper very much. I am glad he referred to the cases of thyrotoxicosis occurring in patients where we can find very little enlargement of the thyroid.

The Goetsch test and the estimation of basal metabolism aids us in making a differential diagnosis between these cases and cases of so-called shell shock, where there is also a rapid heart action, nervousness, tremors and profuse sweating. Of these two tests I prefer the basal metabolism to the Goetsch test for the estimation of thyrotoxicosis.

William J. Young: In regard to the treatment of toxic goiter: I cannot agree with the essayist when he says the treatment is essentially surgical. I have personally seen a number of these cases benefited by X-ray treatment, and I think we have all read reports where they were benefited both by the X-ray and radium. While Dr. Frank states the statistics of a certain large clinic show remissions under the X-ray treatment, we must realize the clinic mentioned is essentially a surgical clinic. I was there for ten days a year ago and did not see a single patient operated upon for goiter during that time.

I believe the matter rests with the internist largely as to what should be done in cases of this kind, especially where cardiac disturbances are manifest, after the metabolic and other tests have been made and the patient's surgical resistance determined. In my opinion many of these patients can be treated very well, if necessary temporarily, by the X-ray. By this method of treatment no damage results, and even if there is only a remission, we at least get the patient in better surgical condition.

I understand a certain Louisville surgeon recently stated he would refuse to operate on a patient who had been treated by X-ray therapy. I do not know his reason for making the statement, but suppose he had reference to adhesions caused by the X-ray. That is a theory which has been exploded more or less. The X-ray causes round cell infiltration with the production of elastic tissue thin and friable in type, and I have never heard of this interfering with the operative results to any marked extent.

W. E. Gardner: I want to express my appreciation of the most excellent paper read by Dr. Frank. I was glad to hear him say that it is still possible to make the diagnosis, even in early cases of thyrotoxicosis, by the physical and neurological signs. I believe that is true. If there is very much thyrotoxicosis we usually have the triad of symptoms—weakness, tachycardia and nervousness. Quite frequently the patient also has tremor. While tremor is not always present, if the patient is closely watched and examined carefully from a neurological standpoint, it will be found that a fine tremor is usually present even though the patient may show no enlargement of the thyroid gland.

I have seen a number of cases which formerly I thought were possibly only cases of neurasthenia, where the patients had perhaps been under some great stress and strain attended by physical exhaustion, who were the subjects of mental depression, insomnia, tachycardia, etc., which I know now must have been cases of thyrotoxicosis. These patients improved, however, under the ordinary rest cure, such as usually prescribed for neurasthenia, i. e., rest in bed with full feeding, freedom from worry, prolonged tepid baths, etc. I believe rest is the essential factor in most of these cases that seem to improve under X-ray treatment, because these two forms of treatment are used together as a rule. It has been my observation at any rate that where patients are given X-ray treatment for thyrotoxicosis they are made to take a great deal of rest. However, I do not mean to say that the X-ray has no effect on metabolism so far as the thyroid is concerned. I believe many of these early cases of thyrotoxicosis will improve under rest alone, but I do not see how they can be permanently benefited in this way unless the symptoms are due to simple transitory hyperactivity of the thyroid gland which possibly may take place in individuals who are subjected to sudden mental or physical strain.

So far as the internal secretions are concerned, we know there are several glands with internal secertion, and that these seem to be more or less intimately associated with and interdependent upon each other. If the individual is subjected to sudden severe mental stress or strain there results "a sort of a storm" and a disturbance of the proper balance of these internal secretions. I believe in many cases we had suspected hyperthyroidism and where the condition has subsided under rest, it was probably a transitory hyperactivity of the gland and was not really a toxic thyroid. It seems that in some of these thyroid cases there is some form of focal infection as a causative factor, but I believe in many of the cases the thyroid gland becomes hyperplastic, due to the deficiency of one or more of the other glands.

Hypopituitarism is often associated with hyperthyroidism, according to some authorities. Deficiency in pituitary secretion has been spoken of as a positive sign of hyperthyroidism. I believe the sugar toleration test helps to confirm the idea that there is often hypopituitarism in connection with hyperthyroidism. In hypopituitarism there is always a high toleration for sugar so far as elimination by the urine is concerned, and I believe this is also true of hyperthyroidism. This has always interested me and I have often wondered if this test had any value in connection with the basal metabolic rate in cases of thyrotoxicosis. In other words, will it not be eventually demonstrated that in many cases of hyperthyroidism which now show a high metabolic rate, there has been a hypopituitarism which existed previous to the development of thyroid symptoms, and which was, in part, the cause of the thyroid becoming over-active and hyperplastic in an effort to supply the deficiency of the pituitary body itself?

J. P. Boulware: I have enjoyed hearing Dr. Frank's paper very much, particularly as I had the pleasure of being present at some of his operations. I can confirm everything the essayist has said about the basal metabolic rate and the adrenalin test in cases of thyrotoxicosis. It must be remembered that we do not get all the classical symptoms in any disease, and I think that is the reason we do not get the same increase in metabolic rate every case of thyrotoxicosis.

I think Dr. Frank has sounded a good note of warning in regard to being on the lookout for hyperthyroidism in cases of extreme nervousness, muscular weakness, tachycardia and diarrhea which cannot be otherwise readily explained. I remember one of his cases of thyrotoxicosis started something like twenty-five years ago with diarrhea.

A patient was sent to me not long ago who had been treated for a nervous breakdown, in bed for six or eight weeks. According to the history the patient had a miscarriage about eight weeks previously. Examination showed slight enlargement and hyperactivity of the thyroid gland, due, I believe, to the miscarriage—the same type we get at the time of puberty and during pregnancy. The woman was placed in bed and proper treatment instituted for her miscarriage, and she went home within two weeks completely cured of her "nervous breakdown." I am sure if this patient had been seen sooner she would not have suffered from nervous breakdown for six or eight weeks.

R. Hayes Davis: I have enjoyed Dr. Frank's excellent paper very much, because I feel that this is one of the most important subjects with which we have to deal at the present time. I can look backward over several years and can now appreciate the vast number of people who suffered from neurasthenia and varying degrees of tachycardia who were regarded simply as neurasthenics without considering the thyroid gland as a possible cause of this condition. During the last two or three years, however, I have been very much interested in this subject and have studied every case carefully from a thyroid standpoint.

I think the most important group of cases, and one that is usually not recognized, is the type of individual who is predisposed to Graves' disease which can be recognized in its early stages and possibly prevented from developing into true Graves' disease at a later date. By this class I mean individuals who show temporary hyperthyroidism at the menstrual period and under undue excitement. There are a great many people who are over-stimulated during their menstrual periods. Their pulses are oftentimes increased in rapidity and if they are examined carefully they may show fine tremors. As soon as the menstural period is over these symptoms entirely disappear and the patient remains well until the next period. This is a type of case that could very easily develop permanent hyperthyroidism under some undue strain or shock. If the patient is carefully watched and is cautioned about her mode of life, etc., with proper hours for recreation and rest, future trouble may in many instances be entirely prevented.

With regard to the diagnosis of thyrotoxicosis early cases are, of course, very difficult to differentiate from effort syndrome and varying types of so-called neurasthenia, but I believe by prolonged observation most of these cases can be diagnosed even without the basal metabolism test. If the patient does not respond satisfactorily to ordinary rest, if the tachycardia persists over a prolonged period of time, if there is constantly present a tremor, muscular weakness, increased fatigue, with, of course, the presence of enlargement of the thyroid gland, these cases are in most instances to be regarded as hyperthyroid in character even if they are not severe in nature. While basal metabolism is one of the greatest tests we have at the present time and a valuable aid in coming to a definite conclusion, I have been inclined to regard basal metabolism merely as an important symptom, but as only a symptom like the Wassermann reaction in syphilis. Of course, not every case of syphilis will show a positive Wassermann reaction, and likewise I believe that not every case of hyperthyroidism will show an increase in the metabolic rate. I have seen two cases that I was quite convinced, after an observation of two or three years, that the symptoms were due to increased secretion of the thyroid gland, where the patients presented normal metabolic rates. Of course, in more active cases there would probably be no question about the basal metabolic rates being increased. In early cases where there is any question about the diagnosis prolonged observation is required.

The adrenalin test I have never used because from my reading I have not had very much confidence in it. I have felt that it was a test which might get one into considerable trouble rather than establish a definite diagnosis.

With regard to treatment: I think all cases that are very far advanced or are very active, especially cases that have reached the stage where exophthalmos is present, or chronic diarrhea, or very severe forms of toxemia, these cases should be operated upon. I do not believe anyone at the present time is justified in carrying these cases along indefinitely without giving them the benefit of surgical relief. But early cases respond so satisfactorily in many instances to regulation of their lives that it hardly seems justifiable to me to subject them to any surgical procedure until after a very thorough course of medical treatment has been followed. One very important point that I have always considered in treating these cases was brought to my mind some years ago by a case operated upon by Crile. He told this patient to spend more of her time with nature and very little time with people. And I think that is one of the most important factors in the management of such individuals. If these patients are allowed to mingle with crowds in churches, theaters, etc., they are much less likely to show great improvement, because in all these various aggregations of people they naturally show a marked increase in their animation with resulting bad effect on the thyroid gland. If they can be taugh to remain away from people and spend their time with nature with simple occupations, they are very much more likely to show satisfactory improvement.

In addition to rest and dietetic treatment I have depended on very few drugs, principally the bromides and glycerophosphates. The bromides have a most decided influence, and the glycerophosphates are supposed to have a tendency to lessen the thyroid secretion. I have also used certain of the glandular extracts, principally the suprarenal extract which is supposed to depress the thyroid gland, as the suprarenal extracts is prepared from the cortex and not the medulla, and has exactly the opposite effect from adrenalin and also thymus extracts.

The X-ray treatment I have advised in one case only, and have been sorry it was recommended in that instance. It may accomplish a certain amount of good, but I cannot see where it will do any more good than ordinary rest in the management of early cases, and in late cases I do not feel we are justified in advising anything but surgery. I am under the impression that the X-ray causes considerable increase in the fibrous tessue, and if the patient later comes to operation there will be a greater amount of shock and the procedure will be rendered more dangerous than if the X-ray had not been used.

Guy P. Grigsby: A disinterested listener to this discussion on thyrotoxicosis might readily gain the impression that the thyroid gland is responsible for many ills of the human race. Is it possible we are becoming thyroid cranks? As we all know, the medical profession is very prone to adopt fads, and once adopted they are ridden to death.

Dr. Davis has aptly expressed my views on the thyroid situation. I believe thyrotoxicosis is a disease which should be handled by the internist in the early stages, or until he is firmly convinced both as to the correctness of his diagnosis and also the failure of medical treatment, then and then only I believe surgery is indicated. That view may possibly be held by many of the members present, but is not in accord with some of the opinions which have been expressed.

I must admit my inability to diagnose that type of case known as toxic goiter where there is no enlargement of the thyroid gland present and no other indicative clinical symptoms. I recently saw a patient who was admitted to the city hospital on account of her pulse rate, which varied from 90 to 140 to the minute. This woman had been carefully examined and was thought to have thyroid disease, but came to the hospital for relief of uterine bleeding. It subsequently developed that she had a small uterine fibroid which I believed was the cause of her bleeding. I hesitated to operated on her in view of the high pulse rate and other evidences of existing thyrotoxicosis. Her basal metabolism was normal. Hysterectomy was performed, she withstood the operation well, her convalescence was without incident worthy of note, and I have heard nothing of her since then. It is presumed, therefore, that she has been relieved of all her symptoms by the hysterectomy.

There is a most interesting article on the subject of thyrotoxicosis in a recent number of the British Journal of Surgery by Berry, who reports four hundred cases in a characteristic frank manner for which the British are known in their observations. He very plainly records his mistakes and does not seek very much praise for his work. For that reason the article seems of great value and his statements are unquestionably true.

Louis Frank: I wish to open my remarks by citing a case exactly contrary to the views expressed by Dr. Grigsby: More than a year ago a woman was sent to the city hospital clinic for operation. We did not believe from the history and the clinical findings that she was suffering from the disease for which she had been sent, therefore operation was postponed and the patient referred to Dr. Moore for some further diagnostic work, including the basal metabolic test. We expressed to the class the view that the patient had a toxic goiter. She had no enlargement of the thyroid, but her symptoms—diarrhea, rapid pulse rate, nervousness, tremor, etc.—led us to believe that she had a toxic goiter nevertheless. She was finally dismissed from the service.

The patient came to us as a private case probably a year later and our study then showed a decided increase in her basal metabolic rate and she presented more marked thyroid symptoms. To make a long story short, we removed her thyroid gland and she made a prompt recovery with subsequent disappearance of all symptoms.

We believe the operation originally suggested, and for which this woman was sent to the clinic was not absolutely necessary, although she had sufficient pathology to justify an operation. This patient had been under medical treatment for a long time without any improvement in the symptomatology present.

We know that women may have some disturbance of ovarian secretion and present symptoms closely analagous to and oftentimes attributed to toxic goiter. All the ductless glands—ovary, thyroid, thymus and adrenals—are closely related so far as the action of their hormones are concerned, they are interdependent, and disturbance of one may cause symptoms referable to another. Cases have been recorded where apparent hyperthyroidism was relieved by the removal of pathology located about the genital organs; that is, following removal of the ovarian pathology the thyroid symptoms disappeared. Not every patient with enlarged thyroid should be subjected to surgical operation, and certainly none but the very mildest and earliest thyrotoxic symptoms should be treated medically.

The discussion here tonight reminds me of that of gastric ulcer and of a question asked Dr. William Mayo, which might be asked with equal propriety concerning the surgery of toxic goiter. Someone asked Dr. Mayo when cases of duodenal or gastric ulcer became surgical. He answered this by saying "after twenty or thirty perfect medical cures." With all due respect to our friends who advocate radium and the X-ray, we might paraphrase the above answer with regard to when cases of thyrotoxicosis become surgical and say "after they have had several complete radiographic cures." No doubt radium and the X-ray have a beneficial effect upon certain types of goiter, but we believe it is purely temporary. We think no permanent cures will be reported from these agents. The conditions here are comparable to the reputed cure of gastric ulcer by any of the methods of which we have knowledge at the present time except surgery. There is no question, also, that the treatment of toxic goiter by radium or the X-ray does to a mild degree increase the surgical difficulties though never to such an extent as to prevent removal of the diseased structures. We know that one of the end-results of the action of radium or X-ray is to form new fibrous tissue. The greatest difficulties in operation upon the thyroid gland may ensue if the operator does not get into the surgical plane under the muscles in making his separation; whereas if he does and stay in this plane the separation is comparatively easy. In cases treated with the X-ray this surgical space is practically more or less obliterated, and when you begin separation of the muscular tissue you have a "sticky" field often accompanied with annoying hemorrhage. Cases treated by these various methods later apply to the surgeon because the non-surgical treatment has been of no avail, and while no great damage may have been done, operation is often more hazardous as a result of the progressive cardiac and other visceral changes resulting from the disease.

I believe in this disease the medical man and the surgeon should be closely associated in their work. The patient should be closely studied by the medical man, but I think also if we are to depend on the medical man alone to determine whether or not an operation should be performed, a great many of these patients will be permitted to go to an untimely and unnecessary death. The medical man must have seen the operation, he must have been closely associated with the surgeon in the study and observation of toxic goiters treated surgically, before he is competent to judge as to what may or may not happen as a result of the surgical risk. Such information cannot be secured from reading the literature, nor from study of the basal metabolic rate. In fact, the metabolic rate does not mean anything with reference to the operability of the patient. However, it does mean a great deal with refence to the degree of intoxication.

All of these patients have periods of remission and exacerbation, and if the thyroid gland is not removed fatality occurs from the overwhelming intoxication. Fatalities do not come as a rule from the anesthetic, but from the heart; they come from the handling of a very active thyroid gland which is excreting poisonous material. If we could stop the gland activity during the period of operation and stop the hyperfunction of the remaining portion of the gland following operation, we probably would not have any death.

Touching the point mentioned by the essayist about ligation: We have ligated a few of these glands when this procedure seemed indicated. Some of the patients we have not seen since, but I think they have remained well, at least they have not returned. We believe now—and probably we have all changed our minds about the treatment of toxic goiiter from time to time—that ligation should only be performed as a preliminary step to lobectomy. Ligation itself is almost as dangerous as lobectomy with less prospect of permanent cure, therefore I believe the majority of operators are now in favor of lobectomy. It must be remembered, however, that lobectomy does not cure damage already done; that it will not of itself restore a damaged heart. Time is required to produce a permanent cure. Secondary operation may be necessary in some few cases with further removal. There may be recurrences in a certain very small percentage of cases, but I believe return of symptoms is now less than heretofore, because we have learned that only a small portion of the gland need be left. It has been found that four-fifths of the gland may be removed with perfect safety to the patient. With the more extensive removal we are able in a measure to almost prevent recurrences. However, the fact must always be borne in mind that there may be a recurrence in any case. The patients above all should not be permitted to return to usual duties until some time has elapsed. If they do they may continue to have symptoms. They cannot be looked upon as cured simply because the gland, the source of the toxic secretion, has been removed. Whther the hyperactivity of the thyroid alone is the cause of all these disturbances we do not know. Lobectomy seems to me the operation of choice, and this usually places the patients in position where they can live out the balance of their lives without further disturbance from their toxic goiters.

L. W. Frank (closing): I want to thank the gentleme nfor their liberal discussion. In the fatal case mentioned in the report, the patient had been treated medically and with the Roentgen-ray for five years and had gone from bad to worse. She had arrived at a stage where something had to be done. The hospital in which she was located was so situated that we could not employ our usual treatment preliminary to operation, and we feel that thereby her chances were very appreciably lessened.

In such cases the anesthetic is a very important item. We do not believe that fatalities occur from the anesthetic, per se, but rather is due to cardiac failure brought on by struggling during the induction period which overburdens an already weakened myocardium. If the patient can be carried through the early stages of anesthesia easily, gently and without struggling, the operation can usually be safely performed. Consequently for several days prior to operation we accustom our patients to anesthesia by giving them small but increasing doses daily until they no longer become excited when the anesthetist goes into the room with her apparatus.

As to the adrenalin and other diagnostic tests: The most important feature in the diagnosis of toxic goiter is a careful clinical examination. To my mind, and as Dr. Davis has said, the basal metabolism and adrenalin tests are simply diagnostic signs, just as leucocytosis is one of the signs of appendicitis. Leucocytosis and abdominal pain do not necessarily mean appendicitis, nor does a positive adrenalin test mean toxic goiter in every instance, although some authorities have shown the adrenalin test is positive more frequently in hyperthyroidism than in any other disease. We believe the adrenalin test is of considerable value in determining the degree of intoxication, but as a diagnostic test it must be considered in conjunction with the other clinical signs of hyperthyroidism.

Concerning the point made by Dr. Thompson about effort syndrome in soldiers: It has been observed by many that a certain large percentage of these soldiers, and especially those who had been "in the line" and under severe strain and excitement, had definite enlargement of the thyroid gland. The question has been raised: were these cases of neurosis, effort syndrome, or goiter? In many of these, as Dr. Thompson has stated, the adrenalin test was positive.

In regard to the X-ray: It has been shown that it takes three or four years of treatment with the X-ray to bring about a cure, as determined by the basal metabolism. The same result, i. e., cure, can be obtained by surgery in three or four months. Furthermore, during the time the Roentgen-ray is being applied, the goiter continues to cause its intoxication, producing degenerative changes in the nervous system, heart, kidneys. This same objection holds good for prolonged medical treatment, viz., that during the course of treatment degenerations occur, especially in the myocardium, and then even though operation is done the changes which have already taken place cannot be remedied.

Another point in regard to X-ray therapy is that there is produced increase fibrosis of the periglandular connective tissue, and operation subsequent to such form of treatment is thereby made more difficult.

A great many patients suffering from thyrotoxicosis never develop exophthalmos. They have all the toxic symptoms, tremor, tachycardia, nervousness, weakness and loss of weight, but do not have the ocular manifestations of this disease. This is the type of case in which mistakes in diagnosis are common. And especially is this true in those individuals who have had a colloid goiter for years and as a result the importance of the thyroid is overlooked.

We believe that all toxic goiters should be operated, and the earlier this is done the better the results. We employ both the adrenalin and basal metabolism tests in studying these cases, and consider them valuable aids. We do not consider that the findings by these tests are pathognomonic, but rather deem them important links in the chain of evidence from which we draw our conclusions.

A SKETCH.

By Steele Bailey, Mammoth, Utah.

I am requested to write, for the ladies of the Womans Clubs of Lancaster, a short sketch of my life's history. If to do were as easy to know what were good to do chapels would have been churches and poor men's cottages prince's palace.

Inasmuch as you want only a brief story I am in a quandary to know where to begin that I may end cleverly.

I was born on June 26, 1842, after an aquatic experience with my grandmother, a punishment which fitted the crime and which was depicted by me in the May issue of the Kentucky State Medical Journal, to which I refer you.

My parents, after their marriage, located on a small farm which skirted the classic banks of a bubbling brook beautifully named "Little Bullskin." It was here that two of my sisters and I were born, in Shelby County, Kentucky. When I was three years of age my father and family removed from this point to Lancaster, where he and John F. Logan, who had married my father's sister, Sarah, went into a general mercantile business under the firm name of Bailey & Logan.

The house in which we first lived in Lancaster was on Lexington Street, about half way between Mr. William Miller's house and the old carding mill, where one of my brothers and my sister, Bettie, were born. Upon the site of this old mill Hon. Allen A. Burton later built a handsome home. Then we moved to a house on Richmond Street, a few doors from the clerk's office, where my brother was born. The big brick house on Danville street, where you were of the opinion I first saw the light of day, my father's family occupied only about twelve years.

Without pursuing minutiae, further believing as I do that you want to know particularly the little I have done as a "medicine man," I will now pitch into the middle of things and render an account of my stewardship.

I began the study of medicine with Dr. O. P. Hill in April, 1863. He advised me to get a Wilson's Anatomy. I procured it and not knowing how to study a book pertaining to medicine, I did it as a boy would his elementary spelling book—I learned it by heart.

I always had a good lesson when I could catch Dr. Hill at home. This was the only medical book I had ever seen up to the time that I went to Philadelphia in September to become a matriculant at the Jefferson Medical College. I did my level best at the institution until its close on March 10 following.

I remained in Philadelphia until the first week in April, when I went over to New York and matriculated at the Hospital College of Medicine in Brooklyn, a summer school, where I remained until the later part of September, when I returned to Philadelphia and agaian entered the Jefferson College, and on March 10, 1865, I was graduated as a doctor of medicine, and as green as a gourd.

I remained in Philadelphia until May, then returned to Lancaster. Dr. Hill, a man of the world, and a brilliant conversationalist, with large practice among the hills of Sugar Creek and on down to the Kentucky River, had but little time or inclination to devote to a novice. Dr. Herring, a man with whom I had but little acquaintance as a boy, meeting me on the public square one day, invited me to his office and there he told me that I was welcome at any season of the year, and while he didn't need an assistant that he would gladly take me along and show me his country practice. This was in June after my return home. I occupied the time in a desultory way, trying to pick up kernels of knowledge as I went along during the summer and fall, the winter and the following spring.

In the summer of 1866, after looking around in other neighborhoods, I concluded to swing my shingle in the old town of Stanford. All of the doctors were in the older class and knew nothing of a medical society. The Lincoln County Medical Society, however, was organized in September, 1868. I was elected secretary, a position that I held so long that the memory man runneth not to the contrary. The next society to which I attached myself was the Central Kentucky Medical Association, composed of the counties of Mercer, Boyle, Garrard and Lincoln.

After being a high private in the rear ranks of this association for four or five years, during which time Dr. John D. Jackson and Dr. Stanhope Breckenridge were the secretaries, I was antonished on one January day in Danville at an election of officers to be made secretary of this noble society. I had learned stenography enough to be able to take down the discussions of the papers which were read at each meeting. This, of course, was very hard work and required lots of time and attention, and for which I never asked nor did I receive a solitary cent. It was a labor of love, but it didn't interfere with my practice, which was beautifully small and unremunerative.

I held this secretaryship without opposition for many years. The next society I joined was the Kentucky State Medical Society, at its meeting held in Bowling Green, I believe in 1879. I was then in possession of a new suit of clothes and the price of a railroad ticket. At a meeting of this society held at Crab Orchard Springs in July, 1884, Dr. Samuel Letcher, of Richmond, the secretary, failed to appear with his books. A large attendance from over the state was present. On motion of Dr. McMurtry I was appointed by the President to act as secretary pro tem.

The annual election of officers came up in the afternoon. Then it was that I was made the permanent secretary of the Kentucky State Medical Society and acted for nineteen consecutive years. At the meeting held in Paducah in 1903 a reorganization as suggested by the American Medical Association took place. The word society was dropped and association was adopted and today the Kentucky State Medical Association is a household word. At this meeting I was elected the first president of the association and served ny time the following year in the city of Lexington, beginning May, 1904.

In March, 1905, I landed at the Tintic Hospital, eighty-six miles south of Salt Lake City, and have been in the far West, in Utah, Nevada, Arizona and California, ever since.

At a cursory glance you will see that I have done much work as a secretary, but the one which required more technical knowledge than any of the other positions I had occupied was that of the Secretary of the United States Pension Board. In 1892 Mr. Cleveland was elected President of the United States and Drs. Carpenter and Peyton, with myself, believing that to the victors belong the spoils, made application that the board be placed in the capital of Lincoln County.

After correspondence with our Congressman, Mr. McCreery, he advised that we come to Washington and consult personally the Commissioner of Pensions. Our visit was a success and our commissions were received within the following month, October, 1893. As a matter of course I was made the secretary of the board with all the work to do.

I may tell you on the quiet that within the twelve years, with two or three Republican Presidents in power, that we held our jobs, and I had the distinction as secretary of never having one of my papers returned to me from the Interior Department for correction.

In February, 1905, I asked for and received permission from the Interior Department for a furlough for six months to visit the far West. I left the old town on March 17, 1905, with the Pension Board running along as a silent sail upon a summer's sea. When I returned after the expiration of the six months I found that sixty days previous the board had been dissolved. I was accustomed to writing medical papers, but my confreres, each of them a better doctor than I, were not so accustomed, hence the dissolution.

With just a little bit of personal history to prevent the windup of this sketch looking as if the tale of the puppy had not been cut off too short, I will tell you that in politics I have ever been a Democrat, in religion I was born and bred in the Associate Reform Presbyterian Church, commonly called the Seceders or Psalm Singers. This church is the evangelical one of the north of Ireland and the south of Scotland. There were never more than four churches of this kind in the state of Kentucky.

One of the real objects of my father's removal from Shelby County to Lancaster was to be within hailing distance of his church, which was located just over the Garrard line in Madison County, ten miles from the city of Richmond. The canons differ from other Presbyterian churches inasmuch as we were close communionists and possessed a confession of faith and chanted the psalms as they were written.

Now, my dear ladies, whether by this means of sketching I have given you an inkling of the storms and bull rushes I have gone through as a doctor of medicine, I have obeyed your command not to indulge in prolixity.

I would love to know all of you personally, I admire your magnanimity in writing up, for history sake, the doctors in the dear old county of Garrard, those who have gone over the river and are resting under the shade of the trees, and permitting those now in the flesh to say pleasant things of themselves. I thank you kindly for your invitation, I have tried to give you the facts as I understand them, and if I have not overshot the mark in any particular my heart is gratified.

Saline Versus Lipovaccines.—Johnson asserts that lipovaccines stimulate the production of agglutinins to a lesser degree than saline vaccines administered in the same doses. The presence of a high titre of agglutinins does not necessarily indicate the presence of an established immunity even against small doses of a highly virulent organism.

THE SURGICAL TREATMENT OF GOITER.*

By John R. Wathen, Louisville.

Since June, 1900, at which time we performed our first goiter operation, to the present date, a period of over twenty years, we have operated upon nearly one thousand patients for goiter, and from this experience we will attempt to draw conclusions. During this same period we have all seen a steady progress in knowledge concerning the anatomy, the physiology, the pathology, and the diagnosis of diseases of this important ductless gland. Contributions have been made from every quarter of the globe and from every field of medicine to aid to a better understanding of diseases of the thyroid.

The work of the late brilliant surgeon, Theo. Kocher, of Switzerland, and in this country, that of Chas H. Mayo, and others, has stimulated everyone interested in surgery and pathology to a careful study of thyroid disorders and their treatment. Judd (1) has said: "The progress made in surgery of the thyroid in this country in the past twenty years is certainly one of the most, if not the most, important advancements made in surgery during that time."

The earlier work of Kocher was confined mostly to the simpler types of goiter, as the cystic and adenomatous, and it was with much hesitation that he employed surgery in the toxic types; for a long time considering them not amenable to surgery. It has been by the study of the more toxic types, which seem to occur with such frequency in our country, that our knowledge has progressed and to Plumber, of the Mayo Clinic, belongs the greatest credit for this study. With the isolation of the active principle of the thyroid secretion by the intensive study of Kendall and with the work of Plumber aided by Boothby and Sandiford with their studies in metabolism, we have marked an epoch in medicine and surgery.

Boothby says: "By the term hyperthyroidism is meant the clinical syndrone resulting from the presence in the body of an excess of thyroxin which Kendall has identified as the active principle of the thyroid gland, and which, according to Plummer, 'Is a catalyst that accelerates the rate of formation of a quantum of potential energy in the cells of the organism.' This syndrone is characterized by an increased basal metabolic rate, and by intoxication clinically evidenced by nervousness, tremor, tachycardia, loss of strength and weight, and in the latter stages, myocardial disintergration."

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

The two toxic types of goiter which were so often confused, i. e., the true exophthalmic and the toxic adenoma, have now been well studied and are better understood. In true exophthalmic goiter the average age of the patient has been found to be from thirty-two to thirty-six years, and the exophthalmos occurs in 50 per cent within a few months, and nearly all develop it within two years.

In toxic adenoma with hyperthyroidism, the average age at which it appears is forty-three years, and they come for operation a few years later. Thus it is seen that of these two types of toxic goiters, the exophthalmic goiters develop rapidly and ten years earlier than the toxic adenomas which later are slow in developing, usually fifteen or more years before toxic symptoms appear from the time they first notice any enlarged thyroid gland. Both of these types present symptoms in common, i. e., enlarged thyroid, loss of weight, tachycardia, nervousness and tremor, as well as increased metabolic rates.

In no class of patients will careful preparation before operating be rewarded with such improved results as in toxic goiter cases. Also the stage of the disease should be taken into consideration. C. H. Mayo has said: "A patient with a metabolic rate of about plus-66, who has survived a recent exacerbation and is improving is a safer surgical risk than is a patient with a metabolic rate of plus-46, who is on the rising wave of exacerbation."

Concerning the operation itself, we would say that for simple, uncomplicated cystic or adenomatous non-toxic goiters, the operative risk is exceedingly small and the results in the hands of those of experience is most excellent. These goiters are usually operated on for the deformity, the discomfort, and the dyspnoea produced, as they have had but little effect upon the nervous or the cardiovascular systems.

If only one lobe is involved, its complete removal is all that is required, but when, as often occurs in adenomatous enlargements, both lobes are involved and dyspnoea is present, it is better to do a bilateral resection after the methods of Mikulicz. The choice of operation must always depend upon many factors in the case and we can not always apply the same rule. As our experience has ripened we are becoming more conservative in operating upon the exophthalmic type of toxic goiters and are now doing a much larger number of pole-ligations as a preliminary step for further treatment. In fact, only those cases of exophthalmic goiter seen in the early and favorable stage are subjected to the radical operation, while two-thirds of the cases presented for operation, seen late, are treated by ligation.

Pole-ligation under local anesthesia occupies the same place in thyroid surgery that the two stage operation does in prostatic surgery. Often to our great surprise, some months after a single or double pole-ligation, we observe a disappearing of the enlarged gland, a secession of the nervous symptoms, a normal pulse rate, and to all intents and purposes, a radical cure has unexpectedly been produced. Under this later mentioned class we have a fairly large number of cases which have passed the five and ten year periods and have still remained well.

The mistake in our earlier surgery on toxic goiters was that we did not remove enough gland and the remaining part, in a few hours after operation, was stimulated to increased and fatal toxic production. Our experience with the injection of boiling water, after the method of Miles Porter, has been limited to only a few cases and therefore we do not feel qualified to comment on the procedure. The x-ray undoubtedly does have a powerful effect on the thyroid gland as can be seen in cases which late come to operation, notwithstanding the statement from the Mayo Clinic by Boothby, that they have been unable to prove that the roentgen-rays definitely influence the natural course of the exophthalmic goiter. Dense adhesions of the capsule to the gland proper are formed and they make the most difficult operations, in fact, so much so that of late we have refused to operate on any case coming to us after prolonged x-ray treatment. The x-ray treatment in exophthalmic goiter should be reserved for those cases unsuited to radical operation.

Thyroidectomy for exophthalmic goiter has cured from 60 to 70 per cent of the cases operated, and about 20 per cent were improved. In the other types of goiters, i. e., the toxic adenomas, we have preferred to do only the radical thyroidectomy, as the pole-ligations have been disappointing. These cases, if seen before there is evidence of oedema, or degenerative changes have taken place in other organs, yield good results and a higher percentage of permanent cures than do those of the exophthalmic type.

Concerning the immediate mortality following goiter operations, we would say that it is with some hesitation that we approach this subject, for there are always so many factors to be considered. The same evolution has taken place in goiter operations that has occurred in other fields of surgery, and in our earlier work the cases were referred to us for surgery very late or only after everything else had been tried. The result was a higher mortality than exists at present, for now we receive them earlier and are better able to prepare, to study, and to select the time for operative work. Simple cystic or adenomatous goiters have in our hands had a mortality of not over 3 per cent, and these deaths were always due to some complication. Single or double pole-ligations, done under local anesthesia, should likewise, if properly prepared and selected, have a low mortality rate, and in our last 100 pole-ligations under novocaine, we do not recall a single death.

In our earlier work with the radical operation for exophthalmic goiter, we probably had a mortality of over twenty per cent, but this has now been reduced by preliminary pole-ligations to about five percent. The toxic adenomas have given about the same mortality rate as the exophthalmic type, and we have now learned from experience not to attempt surgery upon this type in the late stages of the disease when we have a dilated and diseased myocardium and odema or degeneration. We believe that at present it is pretty well agreed that goiter surgery is a field of work which should not be undertaken by the occasional operator unless he has had opportunities to gain experience with one doing such operations.

CONCLUSIONS:

If we wish to obtain the highest percentage of permanently cured or markedly improved patients and also keep our mortality at the lowest figure, we should (1) operate upon cystic and adenomatous goiters before they become so large as to encroach upon the trachea and produce dyspnoea or degenerate into the toxic types from long standing. (2) We should study more carefully our exophthalmic cases and prepare them properly before we even attempt to do a preliminary pole-ligation as a step in advance of a later more radical operation. (3) We should give toxic adenomas a still more careful study and look far beyond the enlarged thyroid for degenerative changes in the cardio-vascular system and important organs as the liver and the kidneys.

DISCUSSION:

John C. Moseley, Henderson: You have heard a very interesting paper by one capable of speaking with authority on this subject.

I asked Dr. McCormack why he requested me to discuss this paper, one with which I have had the least experience, and he said for that reason. He said that Dr. Wathen would apply the knowledge and experience, and I could talk from the standpoint of the inexperienced. While lacking in surgical experience of this kind, I have not been lacking in the improvement that has taken place in the last fifteen or twenty years. As brought out by Dr. Wathen, there has been no greater improvement in any field of surgery than in surgery of the thyroid. The operation of thyroidectomy in itself is not a difficult one; the gland is easily reached and without difficulty exposed, but the most difficult question to determine is whether to operate, and if so, when? Whether the operation should be done in one or two stages, as brought out by Dr. Wathen, whether the gland should be removed today as an initial and final procedure, or whether ligation should be resorted to and during the period of improvement the gland be removed.

I believe the large mortality in the beginning was due more to a lack of knowledge of the disease than to the operation itself. It is marked by exacerbations and remissions. Too often an operation is done on the increased wave, as brought out by Dr. Wathen, before the climax is reached, then the operation slightly increasing the hyperthyroidism, you have the climax precipitated with a fatal result. These cases are for specialists to work on, certainly for some one capable of rendering complete information of the metabolic rate and other evidences for the surgeon to work with. Unless he avails himself of these things he will meet with great disappointment. The occasional operator does not do himself any credit by operating. In no class of patients should the expert be called on more readily than in this particular disease.

J. Garland Sherrill, Louisville: Dr. Wathen has given us a very concise resume of the teaching on the subject of goiter. It has always seemed to me that the simple goiters which we see at or near puberty will in a large number of cases respond to medical treatment. Therefore very few of them come to surgical operation. It is the persistent adenomatous goiter which grows and which in some instances becomes toxic that will demand surgical interference. In addition, it is the toxic type of goiter, even though small, that frequently demands surgical intervention. In many instances the size of the goiter has very little to do with the amount of toxicity in the case. We should not permit a toxic goiter to progress to the point where cardiac degeneration has occurred, where the tissues generally are flabby, and the patient greatly run down, where there is marked tachycardia and prostration. If we meet a case under these circumstances it is certainly well to treat the patient by rest, and, after all, for a toxic goiter there is nothing I have found equal to rest, and I mean actual and absolute rest. In addition to this, I am certain that some cases of inflamed goiters and those that are extremely toxic will be much improved by the application of ice over the goiter itself, and the cardiac region and kept there for some time. In this type of case undoubtedly we would expect some aid from the basal metabolic test, and I am sure it will be beneficial to the patient to be subject to a test of this kind and be observed for some time prior to the time of operation.

A simple goiter should show a low mortality rate. Toxic goiters will show a mortality rate which is dependent upon the amount of toxicity and the time the disease has existed before surgery is employed. Therefore, the patient should be urged to have operative measures early in case he or she, as the case may be, does not respond promptly to properly applied medical treatment.

I am inclined to believe that there is almost as much danger in pole ligation as there is in a prompt, accurate, rapidly done excision of the lobe or a part of the lobe. This may be wrong, but it is the impression I have received from the work done in this class of cases. These operations may be completed satisfactorily under local anesthesia. The operation may be completed with almost any form of anesthetic you may wish to give, and the mortality rate is not very different. McCarrison of Melbourne, Australia, has reported the same number of cases as Crile has reported, some three hundred cases, and the mortality rate was not nearer than 2 per cent. He operated on every case under local anesthesia. I believe that in many cases local anesthesia will be a bad thing for the patient because of the mental excitement the patient has. I do not believe that Dr. Crile's anoci-association accounts for his low mortality in any way. It is largely an imaginary thing, and I believe patients will do just as well with gas or gas and ether as they will with the anoci-association.

Irvin Abell, Louisville: I have listened with particular interest to the very excellent and most practical paper presented by Dr. Wathen, and have profited by his study of cases and his large and wide experience. There are one or two points I wish to discuss in connection with the subject, one of which is the amount of resection that is to be undertaken and done in cases of adenomata of the thyroid. We do see cases in which the adenoma is single, but so frequently, whether of the fetal type, or secondary development type, they are multiple, and in my experience it has been a question as to how much of the gland to remove, because in going back into the posterior portion of the capsule you will find small glands varying in size from a grain of wheat to one or two inches in diameter. It has been this type of cases that has given me the greatest percentage of recurrences. We have done bipolar resection in the adenomatous type of goiter. It has been our practice to do that, leaving approximately one-sixth of the gland tissue, a small portion on either side of the trachea, removing all of the remainder. I have seen more recurrences in that type where we have done bipolar resection than in all other types of goiter put together, and in recurrent cases I have removed one or more adenomata which have grown from small size up to the size of a small hen's egg.

With regard to toxic goiter and the methods of rendering them safe, any great mortality that will obtain in the treatment of toxic goiter, whether medically or surgically, is purely one of judgment. He who is able to determine the factors of safety and carry those promptly through, catching his patient when on the up grade, doing the operation which he thinks is necessary in the individual case, will be the one who will have the lowest mortality.

First, in regard to ligation. I have used that routinely as a preliminary to resection of the toxic thyroid. I do not care how good the patient looks or what his metabolic rate is, there is nothing that gives a reaction to surgery of the thyroid like a ligation under a local anesthetic. If the patient has not a marked reaction to ligation, you may feel safe in proceeding with your thyroidectomy. I have lost patients with a metabolic rate under thirty, with a pulse rate of 90, but I thought we were in a quiescent period, and I did not do ligation previous to the thyroidectomy. I may say, there have been few deaths in cases where we have resorted to preliminary ligation of the thyroid as feeler, as between other methods, and my experience leads me to a slightly different conclusion from the essayest in regard to the preliminary use of the X-ray. I have patients who are apparently well following ligation, and I have a number apparently well following the use of the x-ray, and I would like Dr. Keith to discuss that phase of the subject because to me it is one of intense interest. The question came up a year ago in connection with Dr. Keith as to the possible effect of the X-ray upon toxic goiters as a preliminary to operation. Under the method which he has employed, and it is not intensive, I have experienced no increased difficulty in operative measures from adhesions as a result of preliminary treatment with the X-ray unless used massively and continuously. In a series of treatments, consisting of three to five, repeated at intervals of two weeks, there has been no increased mechanical difficulty at the time of the operation, and in my experience it has been a wonderful help in reducing the toxicity of these glands. That in connection with ligation has made most of them practically safe.

There is one other feature I have found to be of benefit in these cases, and that is particularly the type of case mentioned by Dr. Wathen, where secondary changes in the myocardium and kidney are such as to preclude the advisability of undertaking any surgical intervention. We have used in such cases the injection of quinin and urea hydrochloride. If you go back you will recall that some years ago we were using quinin and urea hydrochlorate as a local anesthetic. Following the injection of a solution as small as one-half of one per cent there was marked infiltration in the region in which the injection was made—a marked fibrosis. It occurred to me that if such a small percentage solution would do that in an ordinary wound, we might secure very marked fibrosis in these hyperthyroid goiters or one subjected to hyperthyroidism by using a much stronger solution, say 5 to 10 c.c. of a 5 per cent solution of quinin and urea hydrochloride. It may be given for its local anesthetic effect, and you can introduce a needle into the pole of the gland following the site of injection. That has been a wonderful help in producing marked fibrosis and in reducing the amount of blood going into the various portions of the gland, and in two instances, where the heart and kidneys permitted, I did resection of the glands. I never have seen following any other method method of treatment, boiling water or otherwise, such extensive fibrosis as a result of the injection of quinin and urea hyperchloride—so much so that in those cases that are hopeless from the standpoint of operability and x-ray, the quinin and urea hydrochloride have rendered these patients comfortable and put many of these girls back to work.

Benjamin Franklin Van Meter, Lexington: We have heard a masterly paper and a splendid discussion of a subject that is in the forefront at the present time. Dr. Wathen, Dr. Sherrill and Dr. Abell and the rest of us who are doing this work, understand one another's language, but the difficulty lies with the general practitioner. We all have practically the same opinions, but the general practitioners from whom these cases come have got to learn classification. Until they learn classification of goiters the men who are doing goiter surgery are not going to get very far. I believe among the mass of the profession they think of only one classification of goiter, and treatment depends upon classification. Until goiters are divided into their proper classification treatment cannot be wisely applied, the men who are doing goiter surgery will be handicapped because they are separate diseases. They have a definite pathology that is different, a treatment that is different. You have heard Dr. Wathen say very correctly that the ligation of the superior poles in adenomatous goiters accomplishes very little, with which I certainly agree. The X-ray treatment of certain types of goiter does not accomplish any good whatsoever. To my mind it is absolutely a crime to treat cases of exophthalmic goiter with X-ray. In the adenomatous types of goiter, the ones that have progressed to an inoperable stage, the X-ray treatment is extraordinarily valuable, but those who are doing goiter surgery find the general practitioner making no classification of goiter cases. To him a goiter is a goiter, and the bigger it is the more profoundly he is impressed. All that is wrong. The small, hard, knotty exophthalmic goiter you can hardly detect, and this type of goiter carries potentialities a hundred times more risky than the big adenomatous goiter which may be toxic or nontoxic. It takes years and years for a large adenomatous goiter to kill a patient through kidney and heart and liver cell degeneration, whereas your exophthamlic goiter kills a patient very readily, or he goes into the inoperable stage very quickly. The confusion, to my mind, is all in the question of classification. In connection with classification you should be able by a carefully taken history to divide your goiters and pick out the ones that are fit for X-ray treatment, and the ones that should be operated. Proper rest and sedatives will accomplish a great deal, but you should never lose sight of the fact that goiter has one fundamental symptomatology, and that is the symptoms come in waves, and that one fact has had more to do with the high mortality than anything else. Why? Because when they are on the decline, when the wave is going out, give them anything you choose and they improve. Treat them with X-ray and they improve and you attribute this improvement to the remedy, and it is all wrong.

If the general practitioner will learn that goiter can be divided into three classes; namely, colloid, adenomatous and exophthalmic, and remember that adenomas and exophthalmic goiters are purely surgical conditions, and should be operated before reaching a dangerous stage in the progress of the disease, and remember that all colloid goiters should be treated with iodine with a good prospect of cure.

James T. Case, Battle Creek, Michigan (by invitation): I have had to do with a number of goiter cases in seventeen years practice, but I have also had the opportunity of seeing a great many of them treated with the X-ray, and with all due deference to the gentlemen who have spoken, whose experience I recognize as being very wide, I would like to submit some opinions based upon a fairly large experience.

First, with reference to the surgical treatment of goiter and the remarks made by one of the speakers that patients were quite excited by the operation under local anesthesia. I would call your attention to the value of hypodermics of morphine or other opiates for the purpose of keeping them from being apprehensive. We have no difficulty with nervous patients by rendering them incapable of being apprehensive at the time of the operation under local anesthesia.

As to the effect of the X-ray, I was interested in Dr. Wathen's remarks about adhesions. I have many times heard the opinion expressed that the preliminary treatment of goiter by means of the X-ray produces adhesions which interfere seriously with subsequent operation should it become necessary. That is not in keeping with our own experience. The X-ray does not produce adhesions that I have been able to observe at the operating table. It may be that the prolonged application of the X-ray, with relatively small doses, will in time produce adhesions. I am not able to contradict that. Dr. Wathen believes that is true. On the other hand, I doubt very much if a single application or three or four applications of intensive highly filtered X-ray, as is now the preferred method of using the X-ray in these cases, will produce adhesions. It is true, if you take a patient with hyperthyroidism to the X-ray room and place her on the table with more or less electrical tension in the air and nervous tension on the part of the patient, it is a measure not calculated to quiet her. For that reason, in such a case, for the first treatment we use radium in place of X-ray, combining the radium container with the application of an ice bag over the thyroid gland. The patient need not know that the radium is in place, and identically the same effects are produced with radium as with the X-ray. A month after the radium application it is usually quite easy to take the patient to the X-ray room for a subsequent treatment with Roentgen rays.

I do not wish to submit any of my opinions as contradicting these gentlemen who claim that the X-ray has no permanent benefit, but, speaking personally, any member of my family who has hyperthyroidism is going to have the benefit of radiation treatment for a good many months before any surgery is undertaken, and unless there is a tumor which by its size causes disturbance other than hyperthyroidism, I anticipate no surgery will be needed.

We have checked up our work in a great many cases with the basal metabolic test; in fact, our Dr. Rath worked with Prof. Benedict in establishing the basal metabolic estimation as a method suitable for clinical work. We have used the method from the first in all our goiter cases, surgically or medically treated. It is almost invariably found that the X-ray therapy brings down the basal metabolism as low as plus 10 or plus 15, from as high as 70 or 80. The number of cases of goiter that go to operation is progressively diminishing each year, whereas the number of cases treated by X-ray and other measures is progressively increasing each year.

D. Y. Keith, Louisville: I only wish to speak on the X-ray side of this subject. I did not hear Dr. Wathen's paper. As. Dr. Abell said, about a year ago we had a conference in regard to the thyroid, and at that time we had an understanding as to what we should say to the patient or what would be said to the patient with regard to therapy; that is, there should be an understanding between the patient and the physician as to what he should receive before being turned over to us for treatment. We have treated these cases with great improvement, so much so that Dr. Abell has deferred operative intervention on a few cases. I believe as he watches more of them he will be doing fewer and fewer operations. We have but very few cases that we can refer to that have gone over the five year period who have had X-ray therapy without any surgery. We have one gentleman who lives close to Louisville, the members of whose family have all had toxic thyroids, and he is the only one living. One of them died on the operating table; another one died two weeks following operation; a third one died under the anesthetic without operation. You can imagine what effect you would have on him if you did an operation. This particular patient I refer to was treated three years ago. He has had no surgery or no ligation. He was treated by the X-ray and has completely regained his health and remains well. It is interesting from the X-ray point of view to see the number of cases that come to us for treatment and the type of cases we get. For the purpose of illustration, last year we had in our office at one time three patients coming from three surgeons of note in the city. One of them had had several operations, tonsilectomy, teeth extraction, and another had ligation, the other had received no surgery and they were too toxic for safe surgery. The one that had had no surgery is completely arrested or cured at present. It is confusing to the average X-ray man to base conclusions on patients coming in that way.

Personally, I am pleased with the results from the use of the X-ray on thyroids. We have not tried enough radium applications to form any opinion, but from our results with radium in other cases, I am sure what Dr. Case said will be borne out. You can produce the same results with radium that you can with X-ray on toxic thyroid.

It might be of interest to a great many men to know something in regard to the technic. We have had a great deal of correspondence throughout the state from men who wanted to know how we do this and how we do that. At the present time we are giving our patients three series of X-ray, giving an exposure over each lobe and over the thymus. The number of treatments to the series depends upon the toxicity of the patients. Nine minutes time is given over each area to a series. Our object in taking three areas on the same day is that we do not have to mark up the patient to prevent overlapping of areas. The first series is divided into four or five doses. The patient is allowed to rest, is kept in bed, if she is toxic, for two weeks from the time of the last application, and the series is repeated, then we can cut the applications down to three treatments to the series. You give as much ray as in the first series. The next series you wait three weeks for, and by the time you start on the third series there is great improvement. They come back for observation at the end of another month, and if no surgery is to be done they are seen by us or their family physician once each month for a period of six months. In this way the patient is observed for a period of nine months. If they continue to improve no further treatment or surgery is recommended. We have failed to see a toxic case that does not quiet down rapidly under radiation therapy.

Walter I. Hume, Louisville: I want to insist more firmly than some of the speakers have done on ligation as the treatment of certain cases of goiter. I have worked constantly with Dr. Wathen for five years during which time we have devoted a great deal of study to the various goiter problems. One of the outstanding things in our experience is the efficiency in properly selected cases of the ligation operation, single or bipolar. I have patients of my own who, five years ago, had ligations for toxic symptoms of varying degree, and have had nothing done since. If radical operation can be avoided, or other treatment is not necessary following so slight an operation as ligation, it ought to be done.

As to the mortality mentioned, we have had no mortality from ligation operations. We have used a local anesthetic in every instance, and have never failed to complete the operation satisfactorily most of the time within ten or fifteen minutes for simple ligation. The results have been splendid.

A definite classification of goiter, as pointed out by Dr. Van Meter, ought to be made and adhered to and it will help the question a great deal. We get cases sent in for the removal of the thyroid and find that all we need to do is a ligation or to give other treatment. Thus oftentimes we appear to be working at cross purposes in dealing with these cases which leads to more or less confusion for our patients. Some of them can be left alone. Some of them perhaps need X-ray treatment. I have no opinion as to the efficacy of the X-ray. I would like to insist, however, that in exophthalmic goiter often ligation or bipolar ligation will be the only thing you need to do. Dr. Crile reported a large series of cases with a mortality in both single and double ligations of one-half to one per cent. He reported several hundred cases of thyroidectomies and lobectomies at the same time with a mortality of 3 per cent.

John R. Wathen, Louisville (closing): In reply to the question of the use of the X-ray, I have due regard for any one's opinion in regard to any therapeutic measure because nothing in medicine is an exact science; it is more of an art, and, of course, these men from their experiences have seen benefit from X-ray treatment. Personally, I have not, as I said in my paper. After 19,000 operations reported at Rochester at the Mayo Clinic, which is usually considered the surgical court of last resort, they have claimed very little or nothing for the use of the X-ray, and whether I am right or wrong, I am at least in good company.

BLOOD TRANSFUSION IN MEDICAL DISEASES.*

By J. Rowan Morrison, Louisville.

That the transmission of blood from one human being to another presented possibilities of being of great remedial value has occupied the minds of many of the foremost thinkers in medicine for several centuries.

Leisrink in 1872, wrote "Transfusion is indicated in all those patholigic conditions where the blood in quantity and quality is so altered that it is unfit to fulfill its physiologic duties."

However, it remained for the intensive scientific work of the twentieth century to show that this remedy could be employed successfully, and with careful regulation without harm. Much credit is due to American investigators in this line of work.

Naturally the first method to be tried was direct transfusion, by uniting in some manner the vessels of donor to recipient.

Crile, Carrel and Bernheim did much to perfect this method, but as there were many objections to direct transfusion, not the least being that there was no way to determine the amount given. Curtiss and Davis collected the blood from the donor in a parafinized glass tube, and reinjected. This method improved by Kimpton and Brown, Percy and others offers today a very satisfactory method of transfusing whole blood.

As beneficial as this method of indirect transfusion proved to be, it still had many disadvantages, and except in the hands of the most skillful the donor's blood often clotted before it could be given to the patient. It therefore became apparent that if some means of preventing coagulation of the blood by some substance not injurious to the recipient, or deleterious to the remedial power of the blood of the donor, transfusion would not only be made easier of performance, but would be a great boon to the patient who although sick and nervous had to be in close proximity to the donor.

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*Read before the Kentucky State Medical Association, Lexington, September 27, 28, 29, 30, 1920.

In 1914-15 several observers working independently of each other found that this could be accomplished by the addition of citrate of soda to the whole blood.

Prof. Agote, of Buenos Aires, performed the first citrated blood transfusion on a human being on Nov. 14, 1914. This method has been improved by Lewison and others. There is no doubt that the citrated method simplifies transfusion a great deal. That it is followed by many more reactions there is no doubt in the reports of many observers, although these reactions are not serious to any extent if the bloods are properly grouped, practically all observers believe. That whole blood offers more in a remedial way in diseased conditions especially is believed by many competent clinicians, although refuted by others. That the citrated method has grown in popularity in the last few years there is no doubt. Most of the important hospitals and clinics are using this method, altogether, or in the preponderance of their cases.

One of the most important contributions to blood transfusion was made by Moss when he determined that in matching the bloods of donors and recipients they fell into four groups. This method has been elaborated by Brem and Sanford.

It is most important that the blood of patient and donor be carefully grouped before every transfusion, except in the most extreme emergencies. The bloods must fall in the same group and besides they should be matched, one against the other before each transfusion to prevent hemolysis and reaction.

It is most important for safety that time be taken for proper grouping, however, in the new born it has been shown by a number of tests that the mother is always a suitable donor. When in case of great emergency there is no time for proper grouping, the first 150 cc. of blood should run in very slowly, and under the most careful outlook for any reaction. Should this occur even in a slight degree the transfusion should be stopped immediately ,and another donor selected, as it has been shown that reactions occurring where this amount of blood or less causes reaction there is great danger of death if it is continued. Whereas, reactions occurring in 20 to 30 minutes up to an hour or so after transfusion either with citration or whole blood, rarely cause any serious trouble, only discomfort. and are regarded by some observers to be of benefit especially if they occur in transfusions for pernicious anemia. The donor should always be young, robust, and healthy person if possible, as such blood is of far more remedial value.

In all hospitals and medical centers a number of desirable donors should be grouped and located so if the emergency arises they can be called on to give the requisite amount of blood desired by a patient of his or her group. There seems to be no untoward effect on the donor if he is strong and healthy, and it is amazing to see how soon they regain the lost blood.

It appears to me possible that the Health Department, State or County, could keep in their laboratories cover slips of dried serum with the simple method of grouping as advised by A. H. Sanford in "Collected Papers of the Mayo Clinic"—1918, Vol. X., page 504.

The conditions in which blood transfusions are indicated, reporting from ~~R. D.~~* Pemberton, "if blood transfusion is looked on as a homologous transplantation of living tissue, as suggested by Hartwell, the indications may be epitomized as being those which indicate the necessity of restoring the lost or impaired body tissue (blood) by a homologous transplant. Definite effects of transfused blood are: (1) Restoration of the bulk of the circulating fluid; (2) provision of oxygen and assimilable pabulum for tissues; (3) increase of the coagulability; (4) stimulation of the hematopoietic organs, and (5) increase of resistance to infection by its antitoxic and bactercidal properties."

J.

I am of the opinion that too many of our medical men have expected blood transfusion to act as a "sure cure" rather than a remedy of acknowledged value and have not used it early enough when it would produce better results than when used as a last resort.

The most important indication for transfusion, traumatic hemorrhage, is strictly a surgical condition and does not come under our subject of medical diseases, nor do those conditions occurring during childbirth. These we leave to our surgical and obstetrical friends. But there are certain hemorrhages acute and sub-acute, occurring in such conditions as gastric and duodenal ulcers and intestinal hemorrhage in typhoid fever in which the medical man should have something to say.

It is a well known fact that very few persons actually die from the immediate result of gastro-intestinal hemorrhage. Nature usually arranges by lowering blood pressure and her various means to stop these, still we see quite a number of this type bleeding or oozing

* Surg. Gynec. + Obst. 1919 XXVIII

for a long time with slowly declining strength and lessened recuperative power. If a transfusion should be indicated in an acute volcanic hemorrhage I feel that the surgeon should be ready at the same time to stop the bleeding point as soon as the transfused blood has raised the strength of the patient. But in slowly oozing cases with declining strength, transfusion is undoubtedly indicated. The following case I saw in consultation: Mr. M. had not been well for some time. He had his tonsils removed. He had considerable hemorrhage at this time. Several days afterward he had pain in the abdomen, and went into collapse. He passed a quantity of blood from the bowel. When I saw him his pulse was very rapid and weak, almost imperceptible. Systolic blood pressure 75 mm. He looked as if he would die. We advised transfusion and in a short time he was given 500 cc. of citrated blood. He revived and was later given treatment for his ulcer.

As regards typhoid intestinal hemorrhage I have never advised transfusion, as I have never seen a case where I thought it was needed, and where the conditions would permit it. Last winter I saw in consultation a case of prolonged typhoid with prolonged oozing and greatly reduced vitality and had everything been favorable I am sure a transfusion of blood from an immune donor, immune either from typhoid fever, or a recent immunization by vaccine, would have saved this patient months of nerve racking recovery.

Under the third effect of transfused blood we have the power of increasing coagulability. In that class of diseases called the hemorrhagic diseases e. g., bleeding of the newborn melena neonatorum, purpura, hemophilia, and jaundice. We certainly have need for something to produce increased coagulability. Human or animal serum, intra-muscular injections of human blood and calcium salts have no doubt been of great benefit.

I have never personally had to advise blood transfusion for any of these conditions as the cases of this sort coming under my observation so far have responded to serum, however, in the light of modern results with transfusion I would not feel I had done my full duty if I did not advise transfusion of human blood when I had gotten relief after a trial of the other means. Literature abounds with excellent results from transfusion in bleeding of the newborn.

Soresi classed pernicious anemia and malignancy as two disesase in which blood transfusion was contra-indicated as the destruction of the patient's own blood is more or less continuous, however, in the past decade we have heard much of the use of this remedy in pernicious anemia. Many observers believing it is of distinct benefit, many others believing that it is of such transient benefit that its use was not warranted. J. M. Anders before the Association of American Physicians in 1919 reported 450 cases from 34 physicians the number of transfusions 1,084. In this series 326 cases were reported as having remission or not, of these 326 cases 204 or 56.3 per cent. showed an initiation of remissions soon after transfusion. How long these remissions lasted is not stated. That transfusion alone was not satisfactory is shown by the fact that splenectomy was also advocated in this trouble, as an addition to transfusion. Krumbhaar in 1916 reported the late results in 153 splenectomies. In the series 64 per cent. of the patients showed quick and marked remissions. At the end of the first year, of the twenty-seven cases in this series still under observation, less than half maintained their initial improvement, and at the end of the second year Krumbhaar says that in no case has a cure been effected.

These observers claim that probably if the transfusions and splenectomies had been performed earlier in these patients better results would have been obtained.

So far as I can find no one has reported a single cure of this condition by any method. This looks perfectly reasonable to me, for as far as I know the real fundamental cause of pernicious anemia has not been found and until this is done and a method of removing it discovered I should not expect a cure.

Dr. Chas. G. Stockton before the Association of American Physicians in 1919, reported a case of pernicious anemia under his observation for twenty years with a natural remission for twelve years. During this time the patient was apparently well, but always had actylia gastrica, and the end came with a relapse in which blood transfusion, arsenic and all the usual remedies failed to produce results.

In Cabot's series of cases there was a remission at one time or another in 80 per cent. of the cases, still none of them ever got entirely well.

In my own experience with this fearful disease, the best results have apparently ocurred from more or less natural causes. Although I have tried to remove foci of infection and to improve the desire for wholesome food in every way possible. I have also used Fowler's Solution and Cacodylate of Soda faithfully, but honestly I have never been able to see that I have done anything but help the patient along to a natural remission. I had one patient with a remission with a little over a year and one with nine months' remission. At one time I was inclined to think I was a wonder, but both these patients relapsed and nothing I advised did a bit of good. I did not advise transfusion in either of these cases. In fact I have only had one patient transfused for pernicious anemia, using three transfusions. Outside of marked alteration of symptoms and great mental relief to the patient for the time being, this case did not get any benefit.

Report of a case: Mrs. R., age 49, developed a primary pernicious anemia of the aplastic type. In spite of intra-muscular injection of Cacodylate of Soda, 3 grains daily, she did not improve. By November, 1921, she was in such a wretched state, cardiac weakness, dyspnoa, absolute loss of appetite, sleeplessness and general miserable state that she was given a transfusion of 500 cc of whole blood by the Kimpton-Brown method. She had no reaction at all, and in a few hours felt like another person. She regained color, her fever left and she developed a fine appetite. However, outside of an increase in red cells and hemoglobin her blood picture was not changed, at the end of a week she had relapsed to almost, but not quite as bad a condition as before. She was given two other transfusions of citrated blood at weekly intervals, but with only temporary relief, except that this transfused blood had marked coagulating ability on her blood, as violent hemorrhages from her teeth were controlled in each instance. However, these transfusions produced in her a sense of well being, every other method having failed, that she asked to be transfused for this relief.

Whereas in only 56 per cent. of the cases reported by Anders as shown in remissions being initiated by transfusion of blood and 64 per cent of Krumbhaar's splenectomies quick and marked remissions ocurred as against 80 per cent. of remissions occurring some time or other in Cabot's cases. Still the former in my opinion have it over the latter in that the remissions when they did occur could be more or less predicted and brought about at will in a rather large proportion of cases.

Pernicious anemia is a dreadful disease to treat. The awfulness of some of the symptoms these poor people endure is heartrending.

I am inclined to believe that transfusion of blood is the best remedy we know for this disease, and where it can be used without too much expense or inconvenience to the patient, offers the best relief we can afford these poor victims at the present time.

The surgeons have for some time availed themselves of the advantages of transfusion in secondary anemias in patients with operable conditions, except for the extreme weakness and anemia. Many persons have been transferred from a bad risk to a fairly good risk by a properly given transfusion.

In medicine such conditions as the pronounced and prolonged anemia secondary to nephritis are relieved by transfusion. In carcinoma the patient's general condition is made more endurable. And as I study my cases more carefully I am inclined to believe that I have some old chronic anemias of the secondary types that I could help to boost up to a plane where I could really do them some good with food and rest, and tonics if I would advise traisfusion of human blood. probably in small amounts at rather frequent intervals as advised by Bernheim. I believe that what Bernheim has said of this use of transfused blood deserves more consideration than most of us have given it.

As regards the use of transfusion in the leukemias I have had no occasion to see it used, but from what I have read on this subject I see no reason for its use.

And lastly, we have to consider the ability of transfused blood to increase resistence to infection b yits antitoxic and bactericidal properties.

I have advised transfusion in two such instances. In neither case was anything but temporary good accomplished.

Mr. X. Age 60. Seen in consulation. He had septicaemia, with endorcarditis, was very anemic and weak. He was given 500 cc. of citrated blood, followed in one hour by sharp reaction from which he promptly recovered, but if there was any benefit it was only fleeting.

Mr. Y. Age 57. Had a septicemia with no apparent involvement of internal organs, but many abscesses of the subcutaneous tissue. This case was seen in consultation with Dr. Louis and Wallace Frank and Dr. Cleves Richardson. He was in a very weak and run down condition, partially delirious, could hardly be aroused, had no appetite, and was very aenemic. He was given 500 cc. of citrated blood. and showed very marked improvement in that he regained his appetite, took interest in things. His blood picture improved and the abscesses showed signs of healing. The improvement lasted for about three weeks, when he again began to fail. A second transfusion was given one month after the first, but with slight improvement.

CONCLUSIONS.

In spite of the rather poor results I have reported in this paper I am convniced that if properly used at the right time blood transfusion offers a remedy of much value in a considerable number of medical diseases.

As I have said in the beginning, my opportunity for personal observations have been limited and my only hope is that what I have said will lead to a thorough discussion of this subject before this body of physicians.

DISCUSSION:

Morris Flexner, Louisville: This excellent paper should not go by undiscussed. There are one or two points I would like to emphasize. The uses and value of transfusion need not be touched on in this connection. I feel that we ought to apply to civilian life some of the things that we learned in the army. In France, in all large hospital centers, they had in the operating room, a list of men classified according to their "blood-group" who might be called at any moment when transfusion was necessary. It was only a matter of a few moments to group the patient and then some donor from the same group was called and the transfusion done. Here we have to get a member of the family or a friend or pay some one to give the blood and often the bloods do not match. It is a much more difficult and round about way of approaching the subject.

I agree with the essayist that transfusions in cases of pernicious anemia is largely a palliative measure.

An interesting article appeared recently in the Journal of Laboratory and Clinical Medicine, in which the author reported transfusion in a case of streptococcus viridans septicemia. The organism was isolated from the blood of the patient and a vaccine made which was given to the donor with the idea of developing anti-bodies in his circulation before giving the transfusion. This is an excellent idea and is well worth trying in this type of infection, which at present is almost uniformly fatal.

John W. Scott, Lexington: I disclaim any great experience in transfusion. I think Dr. Morrison has had more experience than he admitted in his paper, but I was glad he emphasized the careful selection of the donor. Of course, that is fundamental. I believe, however, that when time permits the selection of the donor, trying out the blood of the donor against the blood of the recipient is superior to simple typing of the blood. Violent reactions are certainly escaped by selecting blood of the proper type, but is well to have a number of prospective donors, and their cells tested against the serum of the recipient and the cells of the recipi against the serum of the donor; degrees of lack of hemogeneity are thus detected. The more completely homogeneous the blood of the donor is, the less the danger of a slight reaction.

E. P. Guerrant, Winchester: Dr. Morrison has read an excellent paper before the Association. I have been much interested in transfusion, particularly in pernicious anemia. In the last two years it has been my misfortune to have had three cases of pernicious anemia. One of these cases went to the laboratories of Louisville, Lexington and at last to Chicago. I advised this man against transfusion. However, he went to Chicago and they transfused him and shipped him back to us, but he never rallied from the treatment. That is one of three cases that had transfusion. My experience with transfusion for pernicious anemia is only limited, but there can be no question about the value of transfusion in cases of sudden shock or loss of blood. The citrated method is, in my opinion, the most satisfactory. It is simple and every hospital should have one man with a salvarsan outfit, with sodium citrate, and know how to use it. He should know how to group his patients, as it is easily and quickly done. Last summer Dr. Judd advised me to do transfusion in a case of sudden hemorrhage without grouping, if time is precious. Start with a small quantity at first and watch your patient. I think it is time for more members of the medical profession to learn this art because it has become extremely simple with the sodium citrate solution.

These three cases of pernicious anemia in the last eighteen months were extremely interesting to me. I was fortunate in being able to hold a post-mortem on every one and found a pathologic condition of the colon in each. One particular laboratory reported tuberculosis of the large colon. On the second case the laboratory returned a negative report. I should like to say that in the case which was reported as tuberculosis of the colon, the colon was only as large as my thumb and very hard. The mucosa on the inside was a dull, reddish, inflammatory mass from one end of the colon to the other. In the third case the intestinal contents were lost from the home to the laboratory.

Last night I read in the Annals of Surgery an article by Dr. Will Mayo, who sums up the subject of pernicious anemia by saying that the only result we get from transfusion is a temporary one; that splenectomy, which they discontinued two years ago, has been taken up recently by them again. The position is taken that splenectomy is the only thing that gives any results whatever, although they do not mention any cures. Dr. Mayo sums the thing up in this way, that possibly we will find the cause of pernicious anemia in the large bowel; that an extreme toxemia from a pathologic condition will cause an anemia as severe as pernicious anemia. He does not say positively that it will cause it, but in his article he states that the large bowel is one of the most important organs to watch in cases of pernicious anemia, and possibly some day we may discover an infection or pathology of the lower bowel that will account for our unknown primary anemia.

Guy Grigsby, Louisville: The glamor and mysticism of transfusion would seem to have taken hold of the profession. I want to assure you gentlemen that transfusion is one of the simple things that can be done in surgery by the use of the citrate method. If you are going to use the whole blood method, it requires a great deal of surgical skill and careful technic, but by the use of the citrate method there is no reason why any doctor, who is able to introduce a needle into a patient's vein is not capable of giving a blood transfusion. It is a simple method to select a proper donor, take the blood from him and run it into a bowl containing the citrate solution. If you do not care to give the patient the blood that day, put it away in your ice chest, and give it when convenient. The citrate method far outweighs the whole blood method because of the lessening of the shock to very ill patients. Very often in bringing an old patient to the operating room the psychic effect does more harm than the blood transfusion accomplishes. Where you take blood from the donor, go to the patient's room, introduce a small needle into the vein and run in the citrate blood. These patients have no psychic shock and suffer no pain, and that accomplishes the maximum amount of good to your patient from the blood transfusion. It has been my privilege to give a few transfusions here in Louisville, and for a number of traumatic conditions abroad. There have been some transfusions given for pernicious anemia, and I believe from what I learn of these cases the effect has only been transitory, but certainly the mental picture, the general appearance of the patient in these advanced cases of pernicious anemia, is very much improved by blood transfusion. It is almost uncanny to watch the complexion of these patients, and how the mucous membrane becomes pink upon the injection of healthy blood into their veins.

Unquestionably the mental effect and relief given by transfusion justify its being given. The reactions from the citrate method in my experience have been practically nil. In none of the patients to whom we have given transfusion has the reaction been of any moment whatsoever. The point I want to make is that transfusion should be resorted to more frequently than it is at the present time. Many cases in injury, shock, or other causes, if given 500 cc. of blood, could be tided over and brought to a condition where they could be operated on properly and their lives saved.

Walter I. Hume, Louisville: I am interested particularly in the surgical phase of this subject, but transfusion is of great interest to all of the medical profession. Dr. Morrison's paper is a splendid and timely one, and I want to take up two or three points.

It seems to me, we use transfusion very much less than it is known to be used in other places or countries. In France it is used a great deal and we got splendid results from it. It is useful in the preparation of patients to get them in a condition to withstand operation which otherwise they might not do. Transfusion when indicated should be instituted early in order to do good. In accident surgery, in operative or postoperative hemorrhage, we should resort to it very much more frequently and earlier than we do. It would be a good plan if every hospital were equipped completely with an apparatus and had donors typed and ready to use for transfusion on short notice. The typing of the patient is all that is left to be done if you have the donors and the apparatus. The technic is simple; anybody can do it, and while I have seen a few reactions, they have not been severe enough to amount to anything. In one case I recall we stopped and got a new donor. The results of transfusion are so favorable when properly used and used in time, that the method deserves a much wider use. I hope Dr. Morrison's work in this line will lead to renewed interest in this life-saving procedure.

J. Rowan Morrison, Louisville (closing): The last two gentlemen in discussing the subject have taken up the question of surgical transfusion, and I am glad they brought that out.

I think Dr. Scott in his discussion misunderstood me. I said not only should they be grouped but sufficient time should be allowed before each transfusion for the blood of the recipient and the blood of the donor to be matched each time. Some of the recent literature shows that where a child was not grouped with his father and the blood drawn matched thoroughly, the transfusion did not mix at all, and the child was not in the group with its father and had an individual reaction. A competent laboratory man ought not only to be able to make a proper grouping, but be able to match one blood with the other.

The point fade by Dr. Grisgsby and Dr. Hume is one well worthy of our consideration. I looked up in one of our infirmaries how many transfusions have been done in the last year, and find it is not done sufficiently from a surgical standpoint, and it is not done as frequently as it should be from a medical standoipnt. More of it should be done. If properly matched, and every facility is offered for matching these bloods it can be done as readily as the injection of salvarsan. Pernicious anemia is a horrible disease, and even if transfusion only produces a mental and psychic effect, it is worth while. Some one said to me the other day, "transfusion is of no more advantage than the giving of whiskey." I suppose one transfusion does not cost any more than two drinks of whiskey these days. Transfusion, however, does afford temporary relief. It is not a cureall, but a remedy of acknowledged value if used at the proper time, and we can get better results than from anything else. Bernheim says in regard to transfusion that we have not yet taken up the dosage in the secondary anemias and the proper time for its administration. There are many cases of secondary anemia which drag and drag and we send them away. We give them arsenic and iron. They have no appetite and we cannot do much for them. Some of these cases are benefitted by transfusion, and I believe it will do them more good than all the patent medicines they buy and use.

THREE CASES OF MULTIPLE SCLEROSIS WITH A REVIEW OF THE RECENT LITERATURE.*

By Morris Flexner, Louisville.

This disease which has been described by many authors under many names was first depicted anatomically in the plates of Cruvelhier's Pathological Anatomy in 1835 and again by Carswell in 1838. It was the structural characteristics rather than the clinical manifestations which interested these men. It seems to have been recognized first clinically by Frerichs of Breslau in 1849. Its varied and bizarre post mortem findings were difficult of explanation until Rindfleisch in 1863 explained it on the basis of chronic inflammation beginning in individual vessels and then spreading, with sclerosis as a terminal phenomenon. Although a few isolated observations on the disease were published about this time, it was the work of Charcot begun in 1862 and published in 1866 as a monograph which gave the disease its place as an entity, under the title of "Sclerose en plaques." This work has been described as itself sufficient to have established Charcot's great reputation as a clinician and original investigator. Not only did he lay stress upon the three clinical symptoms which have since become known as the triad of Charcot, namely. (1) Intention Tremor; (2) Nystagmus; (3) Scanning Speech, but it was largely through the work of his pupils that the correlation between the symptoms of the disease and the place at which these islands of sclerosis were deposited was worked out and some comprehension of the varying phases of the disease came about. Since Charcot's notable monograph until 1917 no very great contributions have been made to this subject. It is true many excellent case reports have been added. several pointing to different possible etiological agencies and with more advanced methods in pathological technique descriptions of greater accuracy of the lesions have been made. But for the most part the nature of the disease has remained unsolved, and as a result the management from the clinical side has been unsatisfactory. Recently a renaissance has occurred, and this as well as the fact that two new cases of the disease in ex-soldiers have come under our care, has prompted this report.

The occurrence of the disease is interesting. Oppenheim in his text book says that it is the most common of all the organic diseases of the central nervous system. That statement may apply to Germany, but it is doubtful if it is true throughout the world. Marinesco recently has written that he did not see it often in France, and quotes Miura, a Japanese, who says it does not occur in Japan, and Collins who says it is rare in North America.

The clinical picture of the disease is very inconstant, cases varying within such wide limits as to remind one of any or many of the spinal or cerebral affections. The typical course is seldom met and one or many of the classical symptoms may be missing or poorly developed. Rosett has recently taken up the subject of the diagnosis of the disease in absence of Charcot's triad in a case report. Reference is made to the paper of J. Dixon Mann reporting on the mutability of symptoms which these cases present, the changes in short periods of time being almost incredible. The literature is full of many accurate descriptions of the various ways in which the disease presents itself. The course is usually chronic, either simply progressive or with remissions. The latter are of special interest. To see a patient confined to bed; unable to use either legs or arms, with evidence of severe impairment of much of the central nervous system and then to have that patient make practically a complete recovery in a few months, and go through the same cycle in a year or two, is striking. Acute cases ending fatally in a year occur rarely. In the more chronic cases besides Charcot's triad a few findings should be emphasized. The absence of the abdominal reflex is practically constant; optic disc changes, especially temporal pallor, and the ataxic, typical cerebellar gait are common. Bladder disturbances, such as difficulty in urination and at times incontinence or the condition known as "precipitate micturition" ocurrs in 80 per cent of the cases. Evidence of loss of psychic stability appears late, uncontrollable laughter occurring frequently.

As the possible etiological agent many things have been blamed. The infections diseases especially have received attention because of the appearance of the disease at some time after an attack of one of them. Metallic poisons of all kinds; exposure to inclement weather, psychical shock and strain, and inherited and acquired syphilis have all been held responsible. Woodbury in 1919 reported six cases of multiple sclerosis, all showing peridental and tonsillar infection. Four of these had their tonsils removed and their teeth repaired, two making apparent recoveries. He suggests that all areas of infection be cleaned up, believing that a localized infective source, distributing its toxic products through the circulation, may produce the disease. Spiller in the same year inclined very strongly toward a syphilitic etiology. As the concluding paragraph in a case report he writes, "It seems probable that syphilis has some influence on multiple sclerosis. The typical lesions probably are not syphilitic in character, but the syphilis may be an 'agent provocateur.' It would be well to treat early cases of multiple sclerosis as possibly syphilitic—the therapeutic test is well worthy of trial."

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

An article written by Hoffman in The Medical Review of March 26, 1921, and Marinesco's article, referred to above, give the best resumes of the recent experimental investigations into the nature of this disease. In 1917 Kuhn and Steiner injected blood and cerebrospinal fluid from patients recently afflicted with mutiple sclerosis into rabbits and guinea pigs. The injections were either intraperitoneal, intraocular or intracardiac. After three days to two weeks the gait of the rabbits became staggering, the trouble being most pronounced in the hind legs. This lasted from a few hours to 9 days, ending in recovery. paralysis or death. Examination of the blood of these animals by dark field showed a spirochete, different from the pallida, but resembling more the ictero-hemorrhagica, the microbic cause of Weil's disease. On fixation none was found in the tissues, but only in the blood vessels in the liver. This observation was shortly afterwards confirmed by Simon.

Kuhn and Steiner have named their organism "Spirochaeta Argentinensis," after Argentoratum, the Roman name for Strassbourg, where their work was done. In 1917 they injected a monkey intraperitoneally with spinal fluid. In February, 1918, the animal was temporarily paralyzed, but recovered. In June, 1918, the lower extremities became paralyzed with increased reflexes, and the animal was killed in July, 1918. The internal organs showed nothing pathological, but in the brain, changes had taken place in every way comparable to those occurring in human subjects with mutiple sclerosis.

In 1918 Siemerling found by means of the darkfield, similar spirochetes in the brain of a man who had died of multiple sclerosis. In 1919 Marinesco injected guinea pigs intracerebrally,intraperitoneally and subdurally with 3 cc. of spinal fluid from two cases. Those injected intracerebrally showed changes in gait three to four days after the injection. Spinal fluid obtained from these animals by puncture of the fourth ventricle showed rapidly moving spirochetes, similar to those described by Kuhn and Steiner. Marinesco tried to repeat this later, but was unsuccessful and thought that the spirochetes are possibly not present at all times in the spinal fluid, and that perhaps their virulence had become reduced. In conclusion he admits, "with a certain reserve," that the spirochetes seen by him seems to be the pathological agent of the disease.

Kalberlah in 1921 reported successful inoculation in rabbits. He described the organisms as plumper than pallida, tapering to a point at each end, having from three to six spirals. He suggests the name, "Spirochaete Polysclerotica."

Schuster in 1921 reports the findings of fine spirochetes in the cortex in a case of disseminated sclerosis, the site of election being the boundary of the corticular and medullary substance. The article is illustrated.

Rothfeld, Freund & Hornowski in 1921 report negative results—their animals dying from extraneous causes or remaining well. They caution against the acceptance of the spirochete on the basis of animal experiments alone.

In spite of this warning it seems that the experiments, which have been carefully controlled, must be considered seriously. They leave, however, several things still to be explained. The mode of transmission, the portal of entry; whether there is a clinical manifestation before the central nervous system is affected, the question of remissions and many more points are as yet unanswered. But it is hoped that time and careful clinical observation will help to clear this field. which has been in the dark for almost 100 years.

The conception of the pathology of the disease has changed since Charcot's monograph. He felt that the vascular lesions were secondary to the nervous ones, while the reverse seems to be true, the original conception of Rindfleisch. A brief descriptive note will not be amiss here. In gross the lesions are seen as bluish-gray plaques scattered at random throughout the central nervous system. They vary in size from a fraction of a millimeter in diameter to .5 or .75 cm. Both white and gray matter are attacked, the white being especially involved. The cranial nerves and the basal ganglia are also affected. Many pages have been covered with descriptions of the microscopic picture of this disease. Klingman in 1919 published an exhaustive article on the histogenesis of multiple sclerosis, and in the same year Marinesco and Spiller published their articles. The primary lesions consist as a rule of a perivascular infiltration of cells, mainly lymphocytic with polyblasts and mast cells as support. Polymorphonuclears are exceptional, and eosinophiles absent. At times thickening of the walls of the vessels has been noted, a response probably similar to that occurring about the vessel, where because of the inflammation, glial proliferation occurs, but Marinesco has never found the intima involved. He thinks that the lymphatics play a large part in the distribution of the virus, the adventitia of the veins being first affected. Spiller finds the glial proliferation greater in the brain than in the cord. In the gliomatous area the characteristic finding is the disappearance of the myelin sheath and the increase of neurological tissue. Nerve fibres are practially absent, only occasionally a naked axis cylinder finding its way through the apparently degenerated tissue.

Marinesco in his conclusion, states that two ideas must guide investigations concerning the origin and pathology of this disease; (1) The primary process of the disease is inflammatory in origin. (2) The inflammation is induced by an infective agent. Both these ideas were expressed by Marie 30 years ago.

Very little is to be found in the literature concerning the investigation of the spinal fluid in this disease, and we wish to emphasize the importance of this as we believe it to have diagnostic value. Moore in 1920 reported on the examination of the spinal fluid of 28 cases of suspected multiple sclerosis, that number having come under observation since the introduction of the colloidal gold test. Sixteen of these showed pleocytosis, one as high as 89 cells per cm., in 25 globulin was present, blood and spinal fluid Wassermann were negative in all. The gold curve was paretic in 18 cases, syphilitic 3 times and negative 7. In 20 cases in which there was no doubt clinically as to the diagnosis there was pleocytosis in 8; globulin strongly positive in 9, and negative in 2, Wasserman negative in all and the gold curve paretic in 18 and negative in 2. The finding of this curve in 90% of this group of cases is of great value. If lead poisoning and tubercular meningitis, two diseases in which the paretic curve is found, can be excluded, the only two diseases left to differentiate in the absence of the paretic curve are neurosyphilis and multiple sclerosis. And the Wassermann reaction should be able to separate these. In conclusion he feels that the findings of positive globulin, pleocytosis and a paretic curve, in the absence of blood and cerebro-spinal Wassermann is fairly constant and argues in favor of multiple sclerosis.

Adams of Glasgow in 1921 reports on the study of the spinal fluid in 41 cases of suspected multiple sclerosis. In applying the colloidal gold test to these, 34 gave a luetic reaction, 5 the paretic and 2 were negative, the average cell count was 5, globulin was present in only 7 cases; the Wassermann was positive in 9 cases, either in blood, spinal fluid or both. This type of change in the spinal fluid with absence of the abdominal reflex is of great aid in the early diagnosis of the disease, he believes. One case is reported in which after antisyphilitic treatment the spinal fluid reaction changed from luetic to normal, and another which changed from paretic to luetic. Clinically these cases were being treated along specific lines, getting salvarsan or one of its substitutes intravenously and biniodide of mercury by mouth. In the advanced cases no improvement resulted, but prolonged treatment produced amelioration of early cases, and in one or two instances the results were marked.

Since Kuhn and Steiner's discovery the treatment of this disease has had a foundation to rest upon, even though as yet the final word on the spirochete has not been spoken, nor Koch's postulates fulfilled. Salvarsan or Neosalvarsan have been the drugs of choice, with the German recently reporting on the use of silver salvarsan. Iodides and at times mercury in one of its many available forms have been added. The reports for the most part have been favorable, but they cover so few cases that judgment will probably have to be suspended for the present. Juarros in 1920 reported three cases in which the improvement under arsphenamin was beyond anything he had ever obtained with other measures.

Perdrau and Stebbing in 1921 report a case that was markedly benefited by intravenous arsenic. On the other hand, Guillam, Jacquet and Lechelle in 1920 report a case in which the symptoms were aggravated by the use of neosalvarsan.

No report is available concerning intraspinous therapy in this disease. In the two cases which we have treated, this method was tried in one of them. The disease has progressed steadily in this case, in spite of this and intravenous neosalvarsan also. In the other case only neosalvarsan was given intravenously, followed occasionally by spinal drainage. The improvement here has been striking, but the patient is still not well, neurologically speaking. One wonders what effect this type of treatment will have on the class of cases subject to remissions.

For the present, we believe that antiluetic treatment is the logical method of attack upon this disease. It is possible that only relief and not cures will be obtained from this course, for the problem may resolve itself into one of chemotherapy and require a special arsenical to drive this particular spirochete from its lair. If this be the case, the sooner the organism is isolated culturally and the problem approached the better.

Especially do we desire to draw to the attention of the profession the possibility of the disease in ex-service men presenting puzzling or obscure neurological findings. A few of the classical descriptions in the literature have occurred in soldiers. The life is of such a character as to precipitate any latent case. One of our cases associates his first symptoms with the injection of the antityphoid vaccine. It is doubtless only an association rather than a factor in the production of the disease. We have been unable to obtain any figures or reports from Washington.

Case I.

Patient, female, white, unmarried, 44 years of age at present.

Family History:

Two sisters and both grandmothers died of tuberculosis. No other nervous affliction in family.

Personal History:

At the age of 11 had very severe measles at which time she thought her heart was affected. At 13 years had a severe attack of grippe, with fever at times reaching 106; the exact duration of this attack is not remembered. Had typhoid fever at 18, with relapse, this lasting six weeks, during which time she was never very ill. She was formerly subject to slight attacks of grippe, having a cold and fever which would last a few days and then be followed by a period of weakness. Menstrual history normal. Has had shortness of breath on exertion all of life. Appetite and digestion good between attacks, constipation present always.

Present Illness:

The first attack occurred at the age of 14. Initial symptom being a weakness of the ankles which would turn under on walking. The weakness gradually extended to the legs until finally they could not be moved at all. This lasted for one year, when the ability to use her legs gradually returned. These attacks have returned between 15 and 20 times since then. The longest period between them is three years, and it is now two and one-half years since the last. In the recent ones the arms have been involved. There is complete ataxia of arms and legs with a coarse intension tremor, patient being unable to feed herself. Nystagmus is present, but no visual defect. A peculiar change in the voice occurs, the patient talking as if she does so with extreme difficulty, the voice being high pitched, rasping and somewhat monotonous. The knee kicks have been absent, no Babiniski, no Oppenheim, no ankle clonus. All the abdominal reflexes are absent. Prostration is complete, nausea and vomiting occur at times, and the heart action has been so rapid and weak as to necessitate digitalis.

Spinal fluid examination made during one of the early attacks showed an increase in globulin and cells. When the spell begins to subside it takes the patient about a year to get back her equilibrium. Muscles are stiff and she has a peculiar shuffling gait, holding herself very erect.

The approaching attack is noted by a dull burning pain over the lower lumbar and sacral regions, she is more irritable, unusually nervous, and unable to get comfortable. A peculiar numbness of the toes and feet appears and then an inability to move these parts. This gradually extends upward involving the arms and legs, and trunk muscles to less extent. There has never been any difficulty in swallowing. In the last year the patient has gained thirty-five pounds, feels quite well except for a languid feeling in the morning which disappears in the afternoon. Exercise, such as a long walk, will fatigue her for quite a few days. The recent attacks have been more prostrating than the former, but in the interim the recovery has been more complete, the stiffness especially leaving earlier. The patient feels that by being indiscreet as to exercise she could precipitate an attack.

This we believe to be a fairly typical case of multiple sclerosis with remissions. The therapy has been entirely symptomatic.

Case II.

Patient male, white, 35 years of age, single, occupation, artist.

Family History:

Negative.

Personal History:

Had the usual diseases of childhood uncomplicated. No pneumonia, scarlet fever or diphtheria. General health has been excellent, being an athlete and gymnast of prominence until 1917. Entered the army June 5, 1918, getting the first triple typhoid injection two or three days later; the second injection upset him a little, and he fainted immediately following the third one. He was indisposed for only a short time, eating his supper that night as usual. About five days after the last injection he noticed when doing "an about face," he would have to take a step forward or backward to catch himself upon completion of the movement. His endurance, which had formerly been excellent, began to fail him, and he began to be easily exhausted; feeling very tired and sleepy after the morning drill. The unsteadiness gradually became more marked and he noticed at this time his eyesight was not as good as it had previously been, being weak in matters of detail. In October, 1918, the difficulty in reading became more pronounced; his eyes fatiguing easily; the lines tending to become superimposed. He had his eyes examined five times in the army and was given glasses without relief. Was discharged April, 1919. The main things he noted at this time were unsteadiness in his gait, difficulty in reading and the ease with which he became fatigued. He was first seen in July, 1919.

The main findings on physical examination were: Patient was large, healthy looking man, voice a little indistinct, with a tendency to stumble over his words. There was a well marked nystagmus in the extreme lateral position on either side, and also on looking up. There was a slight tremor of both hands, but delicate movements were normal. Knee jerks on both sides exaggerated. There was a well marked ankle clonus on the right and a slight one on the left. The Babinski was present on the right side and at times on the left. The abdominal reflex was entirely absent; no disturbance to sensation was found. The Romberg was present and quite pronounced. The patient walked on a wide base and was quite unsteady and ataxic, not being able to walk a crack without losing his balance. The blood Wassermann at this time was again negative, as it had been in the army. Blood and urine examination normal. The diagnosis of multiple sclerosis was made, and when the patient saw Dr. H. M. Thomas, of Baltimore, in November, 1919, his findings were about those reported. A lumbar puncture at this time showed the fluid to be clear, colorless, and the pressure normal, 8 cells, globulin double plus, negative Wassermann. Blood Wassermann was again negative. Ophthalmoscopic examination of the right eye was negative; on the left the nerve showed a definite pallor for a small edge on the temporal side.

Dr. Thomas concurred in the diagnosis of multiple sclerosis and called our attention to the article of Marinesco referred to previously. He told us of the work of Dr. Charles Byrnes who at that time was using salvarsan intravenously and bichloride of mercury intraspinously in the treatment of this disease. He thought it worth while trying explaining that it was in the nature of an experiment with a modicum of risk associated with it. The patient consented to this, and on his return received three intravenous salvarsans at one week intervals, beginning with 0.3 gm. and gradually increasing it. After the third of these, he was given intraspinously 1-200 of a grain of bichlordie of mercury in serum as prepared by Mulford & Co. Following the salvarsan, there had been slight improvement in gait and vision. The reaction to mercury was quite severe, the patient being somewhat prostrated, unable to void voluntarily for a couple of days. After a week he had come back to his former status and salvarsan was started again, he being given three treatments a month for the next two months. He was given another intraspinous mercury June, 1920, the reaction being similar to the first. The spinal fluid at this time showed only 5 cells, with very slight increased globulin. Following this the patient's condition remained stationary, the sight being definitely improved, he being able to read from one-half to one hour at a time without fatiguing. There was little change in the gait, it being necessary to use a cane to steady himself. April, 1921, the patient's gait became gradually worse, so treatment was resumed. Spinal fluid at this time showed 10 cells with the globulin as before. He was given four neosalvarsans during that month; the last one followed by a intraspinous salvarsanized serum. He received two neosalvarsans during May and one in August. Spinal fluid in June showed 5 cells with a faintly positive globulin, Mastir test in luetic zone.

For the last two months he has apparently had a remission. Marked spasticity has developed in his right leg, and his gait has become so bad that he is confined to bed. The ankle clonus and Babinski on the right side are marked, slight clonus on the left. The nystagmus is present as before. The upper extremities are only slightly involved. The handwriting is a little shaky, but not that which is often regarded as characteristic of the disease. His condition seems to be about stationary now, with possibly a slight improvement occurring. Summary of the treatment is as follows:

15 neosalvarsans, maximum dose of 0.9 gm.

2 intraspinous mercuralized serums, 1-200 gr. each.

1 intraspinous salvarsanized serum.

By mouth he has received iodides, tonics and symptomatic treatment.

After the first salvarsan there was undoubtedly an improvement in the ankle clonus and in the nystagmus, and the gait became a little better. Intraspinous therapy has not done what was expected of it, the patient being worse after the treatments, relapsing shortly afterwards.

Case III.

Patient, male, white, age 25 years; occupation, butcher. First seen October, 1920, complaint at that time being stomach trouble and dizziness.

Family history:

Negative, being married two years, having one child living and well; wife has had no miscarriage.

Personal history:

Had the usual diseases of childhood uncomplicated. Had typhoid fever at eight, was ill six weeks, good recovery. In 1918, while in the army, had influenza uncomplicated, was in the Base Hospital sixteen days. He weighed approximately 160 pounds when admitted in the army and 140 pounds on discharge. Since attack of influenza he has never felt well, having vague aches and pains after a day's work. In November, 1919, had left side facial paralysis—cause unknown, lasting three weeks. After this the patient felt well for about six months, was able to do a hard day's work without tiring.

Present illness:

In June, 1920, the patient began to lose appetite, felt weak, and lost weight; would vomit often immediately after eating. He would suddenly feel hot and dizzy, then nausea would come on; would then vomit and feel relieved. There was no headache present at any time. He noticed that his gait was becoming unsteady and he could not walk a straight line. Vision normal. Vomiting never occurred without the sensation of nausea.

The patient was first seen January, 1921. Main findings on physical examination were: Male, white, well developed, uneasy expression of face, somewhat pale, evidence of some recent loss of weight. There is a slight nystagmus on the extreme lateral vision—none on looking up. Movements of the hands normal, there being a slight tremor not accentuated by delicate tests. Abdominal reflexes: Upper present on right side, reacts sluggishly; middle and lower absent; entirely absent on left. Patient's gait is quite unsteady and ataxic, being unable to walk a straight line. If turned about suddenly must catch himself to prevent falling. Romberg is present, both knee jerks are exaggerated and there is a suggestion of ankle clonus on both sides, but no Babinski.

Laboratory findings at this time showed normal blood and urine and a negative blood Wassermann.

The eye grounds showed little fuzziness of the margins. Gastric analysis a few days later was normal. January 15, 1921, the lumbar picture was done—the fluid was under great pressure, clear, colorless and showed 93 cells per cm., with a globulin by the Pandy and Ross Jones tests, and a negative Wassermann. Four days later he got 0.3 gms. of neosalvarsan and .45 gms. in a week. Spinal fluid on February 1 showed decrease in pressure, 55 cells, globulin. On February 10 received 0.6 neo. Improvement in the patient at this time was striking. He gained about 20 pounds in three weeks. His unsteadiness had practically disappeared and his nystagmus was very slight. From that period to date the patient has received 5 neosalvarsans. He has had three lumbar punctures, with a steady improvement in pressure and findings.

On June 28, 1921, 30 cells were present, with globulin. The patient has felt so well that it has been difficult to get him back for observation and further treatment. He has been attending to his business, driving an automobile and feels quite well. When last examined at the end of June there was only a suggestion of nystagmus in the extreme lateral position, the knee jerks were greatly exaggerated, abdominal reflexes were absent, slight ankle clonus on both sides with a positive Babinski on the right. This, we feel to be a case of multiple sclerosis who has been immensely benefited by salvarsan treatment. How long this will last is purely a matter of conjecture.

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DISCUSSION

John J. Moren, Louisville: We have listened to a very good paper by Dr. Flexner, who has told us all the facts in regard to multiple sclerosis as it exists today. I can add nothing to what he has said except to call attention to an article that was written by an English physician who could not verify the transmission of the spirochete from something like 20 or 30 cases. Another point I wish to make is this, that it is very uncommon to find cases of multiple sclerosis in this section; the majority of cases of multiple sclerosis I have seen here in Kentucky have been foreign individuals. If you go to New York or Chicago clinics, you will see a number of cases of multiple sclerosis. If you will go to the London or European clinics you will find many cases of multiple sclerosis, but they are comparatively rare in this section. and many of them can be classed under such etiological factors as malaria.

So far as the treatment is concerned, I have seen no results from any form of treatment whatever.

W. E. Gardner, Louisville: As Dr. Moren has given us a complete resume of the investigations on multiple sclerosis, and there is very little to add along this line. I agree with Dr. Moren that multiple sclerosis is rare in Louisville. I had occasion a few years ago to see some cases in the clinics in New York of multiple sclerosis, and I have been on the lookout ever since for such cases both in private practice and in the City Hospital, and I have only seen a very few cases here in Louisville.

The diagnosis of multiple sclerosis is not always easy. If we have the triad of symptoms that were referred to by Dr. Flexner—nystagmus, scanning speech and tremor, we should suspect multiple sclerosis. But in addition to these symptoms are present other conditions, such as bitemporal pallor, as well as an absence of abdominal reflexes, which appear quite early.

During the past three years, especially, our attention has been directed to the production of nervous symptoms in animals, which are similar to multiple sclerosis, the animals having been inoculated with spinal fluid taken from multiple sclerosis patients.

In the Archives of Psychiatry of last year there was an article by J. Buscher, which reviewed the results so far obtained in 1917 and 1918 in connection with the inoculation of guinea pigs intradurally by cerebrospinal fluid. These animals died of nervous symptoms as indicated in the paper, and Steiner found spirochetes in the portal vein. Then along in 1918 another observer discovered spirochetes in the cerebral foci of a patient with multiple sclerosis. Buscher thinks the evidence is not sufficient so far to claim any etiological role for the spirochetes, but he looks favorably upon the infectious theory of the eitology of the disease. Upon the theory that the disease may be due to spirochetes, certain German neurologists have advocated the uses of neoarsphenamin in small and frequent doses, which they believe perhaps is less toxic than other preparations of arsenic. It is reported in the Chicago Year-book on Neurology that as long as ten years ago arsenious acid was used in the nerve clinics in Germany in the treatment of multiple sclerosis. In addition to neosalvarsan, silver salvarsan has been used as suggested by Dr. Flexner. It seems to me, however, that this is a rather hopeless sort of disease to treat. The disease is chronic and intermittently progressive. We do have remissions. Sometimes, where treatment has been used, spontaneous remission and cure takes place which will last for a number of years. Altogether, it is a serious and very rare disease, and I think any investigation that is being done, now, along the line of etiology should receive very great encouragement.

Curran Pope, Louisville: I wish to agree with the essayist and the previous speakers that this trouble is rare. I have not counted them up, but I should roughly say that out of 8,000 cases, I do not believe I have seen more than 10 or possibly 15 cases of multiple sclerosis. With two exceptions that I can recall, they were all in the foreign population as Dr. Moren said. These two were strictly American born people and had been for several generations.

I am very sorry I forgot to bring some slides to show the varying pathologic conditions in different portions of the central nervous system. I think I have several hundred slides of multiple sclerotic lesions in my collection. This trouble really was not thoroughly understood until pathologist at the post-mortem table had told the neurologist what multiple sclerosis was.

I shall never forget the beautiful demonstrations of multiple sclerosis by Charcot in his "Lecons du Mardi" and how he would show 15 or 18 or 20 of these cases and group them according to the predominance of certain symptoms, being able to do because of the wonderful material at his command.

With regard to the symptomatology, there is one little point I like to keep in mind which is important, and that it this: You can look for a regular irregularity of symptoms which will help you in interpreting the irregular groupings of symptoms which is apt to occur in this disease. I do not think really that up to date there has been anything found that amounted to much. Temporary help can frequently be obtained by prolonged medication in a neutral bath. It is the nearest relief one can obtain from the tremor and restlessness and general neural discomfort which these people have. I mean by neutral bath the ordinary full tub bath at a temperature ranging between 94 and 96 degrees F. Short stimulating treatment of any kind is bad. I think electrotherapeutics in all its branches is contraindicated in these cases, and I have never seen it do any good, and I have seen it do distinct harm.

A very interesting thing bearing on the question of salvarsan in the treatment of these cases is the persistent advice all through the textbooks. Going back some thirty years and consulting some of the old volumes you will see, for instance, in Gowers, published 35 years ago, a persistent insistence on the value of arsenic in the treatment of this disease, and that is a little suggesive along the line that Dr. Flexner is working. I rather think that if I should get another case, I believe I would follow out the treatment I spoke of this morning for neuro-syphilis, that is, I would drain the spinal canal; I would employ intravenous medication and silver salts, and I would treat with diatherny and the galvanic current the central nervous system and then I would hope.

Morris Flexner, Louisville (closing): I wish to thank the gentlemen for their discussion. Dr. Gardner spoke about the difficulty of diagnosis. That, of course, is the constant thing about this particular disease. The most regular thing is its irregularity.

Recently in the Boston Medical and Surgical Journal some one reported a case and went into the differential diagnosis, and there was not a single disease in the whole textbooks on nervous diseases that was not brought up and taken into consideration before the diagnosis was arrived at. You weigh the thing carefully and rule out many diseases before you arrive at a diagnosis. The spinal fluid may help. In two recent cases it undoubtedly has been of great assistance. I am not absolutely convinced that a spirochete is behind the situation here. The experimental work done on monkeys and rabbits in connection with this disease, is suggestivve, but not final.

VARIOUS METHODS OF PERFORMING CESAREAN SECTION WITH INDICATIONS AND CONTRAINDICATIONS.*

By L. C. Redmon, Lexington.

For many centuries Cesarean section was practiced as a post-mortem operation on women dying late in pregnancy. The Romans went so far as to make it a punishable offense to bury a woman with her child undelivered. The first successful operation on record is said to have been done in 1500 by a swine gelder named Nufer, on his own wife, after several midwives and barbers had been unsuccessful. The teachings of Tarnier bear witness that this operation had not been successfully performed in Paris during his time and the same can be said of Sparth of Vienna, in the same year, 1877.

Parro of Paris in 1876-77 reported several successful cases delivered by abdominal section, but his operation included the removal of the uterus as well as the foetus. The greatest progress made with the operation came with Saenger in 1882, who published his method of suturing the uterus and leaving it in situ. This operation was immediately adopted and with some modification is now known as the classical operation in all parts of the world.

It is hardly necessary for me to describe the technique of the corporeal hysterotomy, the classical Cesarean, or the high operation of Saenger except to give the steps in the operation:

1. Median incision of the abdominal wall.
2. Protection of the abdominal incision and peritoneal cavity from soiling, holding the uterus firm against the abdominal wall.
3. Median incision of the uterus through the fundus with or without eventration.
4. Extraction of the child and placenta.
5. Closing of the wound and application of abdominal dressings.

In searching the literature I find that as early as 1809 in order to prevent the destruction of the child, methods were sought to perfect delivery above the pelvis and yet not open the peritoneum; that is, in cases where the danger of opening the abdomen made it almost prohibitive. This was suggested by Pilgen in 1821; in 1870 Thomas revived the operation named by Baudeloque in 1823, ''gastro-elytrotmy.'' The technique consisted in making an incision above and parallel to Pouparts ligament; blunt dissection under the peritoneum to the cervix and vagina, followed by flank delivery. Infection and many deaths caused this procedure to be abandoned and forgotten. Then Saenger came in with his technique and antiseptics, rendering the classical Cesarean safe and universally adopted.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

Yet many authorities considered that the classical operation might be improved upon. To quote from DeLee: "Viewed from the most modern viewpoints, the classical Cesarean operation leaves much to be desired.

1. It is not safe when an infection is present or even suspected, therefore it cannot always be used to obviate craniotomy on the living child.

2. Post-operative intestinal complications are frequent, and while seldom fatal, are always disturbing.

3. Peritoneal adhesions are formed, causing suffering or trouble later.

4. The uterine scar may rupture in subsequent labor.

5. There is still a mortality of one to two per cent. and higher in just those cases where one would like to adopt this method of delivery."

So in the face of these facts, when Frank in 1906 revived the old extraperitoneal operation, his recommendations were eagerly taken up. There are many modifications, yet they all fall into two classes, the transperitoneal and the extraperitoneal.

The transperitoneal operation is as follows:

The abdomen is opened low, and the incision is made in the uterus at its lowest accessible portion, the parietal peritoneum is sutured to the uterine peritoneum, thus protecting the abdominal cavity from the "spill," etc.

The point in technique of the extraperitoneal operation is that the lower uterine segment is exposed by pushing the bladder to one side and the vesico-uterine fold upward; this is possible because during labor the uterus tends to draw up away from the bladder and the vesico-uterine fold is loosened. This, of course, varies in different women, making the operation more difficult in some individuals. The extraperitoneal operation is a difficult procedure and requires a surgeon of ability and experience.

Since we have three methods of performing abdominal Cesarean sections, what are indications that would lead us to select one over the other? To quote DeLee again: "In the presence of a general indication for a Cesarean section, the classical operation is done in placents previa, fibroids, for a Parro, when the abdomen is excessively pendulous (one cannot get at the cervix well), and in second Cesarean, where there is known to be adhesions. In all other clean cases, Kronig's method of cervical Cesarean is the one of choice. In those cases where infection is apparently mild or suspected the true extraperitoneal operation as done by Latzko is the one selected with supra pubic or vaginal-drainage or both. Gillhorn and Hirst advised the transperitoneal incision with preliminary suturing of the parietal to the uterine peritoneum, thus excluding the general peritoneal cavity from the infected field. Only large experience will decide the question of the comparative safety of the two methods, but that the cervical incision is safer than the corporeal in infected cases, of this there is no doubt."

The above in brief is a resume of the history and recent opinions of authorities as to the methods of performing abdominal Cesarean section.

I was very much impressed in reading the discussion on an excellent article recently published in the American Journal of Obstetrics and Gynecology by the great diversity of opinion as to these methods. These were expressed by men whose opinion we respect, whose opinion we seek when in doubt; so it seems to me that each one's personal experience, even though it may be limited to a few cases, must lead him to decide what is the operation of choice in the given case.

Personally, I have had no experience with any method except the classical operation. In my series of twenty-two cases that has been my method of choice regardless of conditions. I have had no serious complications from infection except some mild skin infections which healed promptly. Two of my cases ruptured at subsequent pregnancy, both of which took place in eight weeks after the operation. Hysterectomy was performed on both cases and both recovered. As to adhesions, etc., I have no reports of any trouble. It seems to me that the extra-peritoneal operation is practically an impossibility, and the question as I see it is the advantage of the low or cervical operation over the high or corporeal.

My technique is as follows:

1. High abdominal incision sufficiently large to allow eventration of the uterus.

2. Eventration of the uterus, carefully packing off the abdominal cavity and the incision with moist towels.

3. Pulling the abdominal incision together behind the uterus with bullet forceps.

4. High corporeal incision in the uterus with delivery of child and placenta.

5. One cc. of pituitrin and thirty minims of aseptic ergot subcutaneously as the uterine incision is made.

6. Suturing the uterus with four rows of cat-gut.

7. Removal of packs and return the uterus to the abdominal cavity.

8. Covering the uterus with omentum.

9. Closing the abdominal wall in layers without drainage.

My success with the Saenger operation and lack of experience with the other methods has probably biased my opinion in this matter. Yet all of us have been reading the same discussions that were heard in 1807, in 1827, in 1870 and in 1906 and again in 1913. Hardly a new thought has been advanced except for changes in technique. The transperitoneal or extra-peritoneal operation have never been generally accepted and never will be. It seems to me that their advantages have been overshadowed by their disadvantages.

Williams sums up the whole matter when he says: "As neither of these operations are available for use in infected patients, as they are more difficult to perform and do not give any better results than the classical Cesarean section, it is questionable whether they will permanently displace it, after the novelty attending their employment has disappeared."

I have not discussed vaginal Cesarean section because I interpreted my subject to refer to abdominal section only. •

DISCUSSION:

J. B. Lukins, Louisville: I am sure we have all enjoyed this splendid paper given us by Dr. Redmon, which has so carefully and thoroughly covered the subject as to the indications for Cesarean section. There can be no doubt but what Cesarean section has proven a great boon to suffering women in childbirth just as the application of the forceps and the use of pituitrin have, but like the other two agents, it must be very judiciously employed. There has been considerable criticism in the last two or three years about too many men doing too many Cesarean sections. A certain amount of this criticism has been just. I feel, however, too many women have been subjected to the somewhat dangerous operation of Cesarean section. On the other hand, speaking from my own obstetrical experience, I feel sure that many lives, both babies and mothers, could have been saved in years past if Cesarean section had been generally employed. There is no doubt in my mind but what I have delivered many still born children whose lives would have been saved had I the judgment to have sent these women to a hospital and done a Cesarean section on them. Cesarean section is not difficult. Any man who is qualified to do an ordinary abdominal operation can do a Cesarean section. It is not so much a question of how to do the operation, whether you do Saenger's method, or the transverse incision, as it is when to do it and whether you should do it in these given cases or not. One of the main things is to have two assistants. In a large number of abdominal operations we employ one assistant. While in doing Cesarean section with two assistants it is a spectacular operation, it does not add to the danger of the patient. The mortality in Cesarean operations is high, but this is largely due to the fact that the woman is in a serious condition. The thing that makes us consider applying Cesarean section is that condition which is already threatening the life of the woman. Certainly, if we wait too long, the delay will cause the death of the child and may bring about the death of the mother. Cesarean section in many instances will save both mother and child. The difficulties of the transverse incision have their grounds, in that the majority of these cases are already infected, the membranes have been ruptured in many cases and forceps already used without success. In such cases it is argued that it is better to employ a low tranverse incision. The operation described by the essayist is more difficult, and can only be done by the most experienced surgeons. On the other hand, the high incision can be made rapidly, and in many instances will save the life of the patient.

As I have previously stated, the main question for us to decide is when we will do this operation, on what indications we will do it, rather than what method we will employ. I do not think any one in this audience will object to the statement that in a contracted pelvis in which the patient has been tested for labor and cannot deliver herself, Cesarean section should be resorted to.

Fibroid tumors causing obstruction in the birth canal have been mentioned as an indication for Cesarean section. I do not believe that the average case of eclampsia is an indication for Cesarean section, and I think I may be pardoned if I give my reasons for this and my own experience, and in saying what I am going to say I take no credit because I think it is more luck than anything else. In fifteen years of obstetrical practice I have attended ten women in eclampsia in my own practice and in consultation with others. In none of these cases was Cesarean section employed. They were all given veratrum viride, and if we had to wait we dilated the cervix later and delivered. Only one of the patients died, and she died of pneumonia on the fourteenth day. I was judging from that and also from the literature, that I believe more lives can be saved if in cases of eclampsia we resort to dilation and delivery and perhaps give them veratrum viride rather than by resorting to Cesarean section.

C. C. Howard, Glasgow: My limited experience with Cesarean section dates back not very many years, but rather from one extreme to the other. I remember when I was an intern we had a case of not very difficult labor, called in the staff, and decided to do Cesarean section. So they got the operating room ready, put the patient on the elevator, the patient got a pain, somebody raised up the sheet, and found that she had delivered herself, so that was the experience on one extreme. (Laughter.) In later years I have seen practitioners go to the other extreme. I have been called in consultation where I am sure we could have saved the child by Cesarean section and the mother. I do not see many cases in which I have been called upon to do Cesarean section, and most of these have been done by men who are practicing medicine and have had experience in obstetrics. They usually send these women into the hospital or see them in consultation, and these women have had contracted pelves, fibroid tumors, and placenta previa as complications. I have come to the conclusion in these cases of placenta previa, after the eighth month, if you can take them to a hospital without doing much examination, make your diagnosis, and if the woman is in good shape do a Cesarean section, you can save the mother. I have gone to the other extreme where delivery was bad, which was worse than a Cesarean section, the mother having lost blood, and we lost the child usually.

As to the method of doing it, I have usually resorted to the classical Cesarean section and find that it has been fairly satisfactory. I have done one or two such operations with one-half per cent. novocain, and I think you can do it with either if there are no contraindications. With the confidence of the patient, however, you can do it under local anesthesia, using one-half per cent. novocain and taking time. The main thing is to decide when to do this operation and decide early; I mean by that before you are worn out; before the woman is infected. I remember one case in which I was very sure the woman was infected, so I did a hysterectomy. There was a little infection, I drained, and it was all right. I would say the main thing is to let the operation be decided on by the surgeon, by a man of experience in obstetrics, and let it be indicated, but do it early enough to save both mother and child.

Louis Frank, Louisville: In the first place, I want to say that I think the discussion has gone far adrift, as I understand the topic is not the indications for it, but rather the indications and indications for it, but rather the indicatians and the contraindications, as the essayist relates, to a particular type of operation. I think we all fairly well understand the indications and contraindications, but if I may interpolate here and digress from the direct subject for a moment, I would say that to those who desire when possible the least bit of urgency to do Cesarean section, many indications will be found.

I wish to endorse and to confirm what the last speaker has said. I have seen several cases where the children have been delivered per vias naturales, (notwithstanding the urgent desire on the part of some connected with the case to do an operation) on the way to the operating room and even on the way to the hospital.

To teach Cesarean section as an operation without danger, we must consider many things. Where is the operation to be done? In a hospital, or is it to be done on women in labor at home away from a hospital? These things should be considered. Cesarean section in a hospital, with proper aseptic technic and a proper operating room force, is a comparatively simple operation. It is a spectacular operation, as has been said. When done fifteen miles from a railroad by lamplight, it is not comparable with other means of delivery with which the general practitioner is more familiar. These things, however, we are not discussing; I mention them as they are things for us to think about. But it is the type of operation in certain cases which is under consideration. I agree especially with what the essayist and the last speaker have said, that ordinarily there are only two things to consider. All of the extraperitoneal operations and transperitoneal operations where we go in transperitoneally and sew the peritoneum around, are accompanied with risks which we do not have in other types of operation. I would say we have only two things to consider. Have we an infected uterus, or a uterus which is uninfected: if it has not been established that there is infection, we may be satisfied with any of the practical types of transperitoneal operations, leaving the uterus in situ. On the other hand, if we believe infection has been established, I think the only thing to do is to remove the uterus; it requires very little more time, and we avoid a great many dangers. Those are the only two things to consider. If the uterus is uninfected, any of the classical operations, high or low, should be resorted to. If the infection has supervened we would better take the uterus out.

L. C. Redmon, Lexington (closing): I appreciate the discussions very much, although as Dr. Frank said, the speakers got away from the subject and spoke of indications and contraindications for types of Cesarean operations. It seems to me, the whole argument hinges on the question of whether we have infection or not, and it has been quite a difficult point to determine whether or not the uterus is infected. I would like to cite a case that happened in my service at the Good Samaritan Hospital of a negro girl, with a generally contracted pelvis, who was in labor 48 hours. We asked how many times she had been examined, and she replied that she was examined every five minutes during that period of time by three or four colored physicians. We did a classical Cesarean section, using the Sloane Hospital technic of cleansing the vagina with ether and iodin. This was done by an assistant before the operation, and then we did a classical Cesarean operation. There was primary union. I think a classical Cesarean operation will answer in practically every case, but the point to decide is whether the patient is or is not infected.

ACUTE BRAIN INJURIES.*

E. W. Jackson, Paducah.

I believe that it can be said without contradiction that the diagnosis and treatment of brain injuries have until within very recent years constituted one of the most doubtful and uncertain and one of the most feared fields in medicine. The mortality has always been appalling, statistics indicating something over 50 per cent, and while owing to the delicacy and highly specialized function of the brain structure, injuries to it will always be serious, it appears that through the efforts of some of our neurological surgeons, notably among them Dr. William Sharpe, of New York, the subject has been placed upon a more rational and scientific footing whereby we are enabled with some degree of accuracy at least to interpret the signs and symptoms and administer the proper treatment at the proper time. And I would like to say here that the time that a procedure is carried out is of as much importance as the character of it, whether it be palliative or operative, and that a case which demands palliative treatment at one time may urgently demand a radical operation a few hours later.

It seems that in the past the fundamental part of the whole subject; that is, the actual pathology of the brain itself has been more or less obscured by the question of whether or not there was a fracture of the skull, while as a matter of fact fracture even when present is in the majority of cases only of secondary importance, the main issue being the injury that the brain sustained at the same time that the skull sustained the fracture. A fracture in fact is occasionally a fortunate complication by virtue of the crevice in the bone permitting the escape of blood and cerebrospinal fluid from an overcrowded cranial cavity and allowing a spontaneous decompression to take place. On the other hand, it is obvious that a fracture when depressed may be the direct cause of brain injury, and whether depressed or not may do injury to a blood vessel leading to brain pressure from hemorrhage and fractures of the base, nearly all of which are essentially compound, and compound fractures of the vault should always put us on our guard for infection traveling through the line of fracture, but the point which I am trying to make, is that the injury which the brain has sustained in the process is the thing of prime importance.

In considering these injuries we, of course, must recognize such entities as concussion, contusion, laceration, intracranial hemorrhage, oedema and depression from fractures, but they are often confusing and difficult of differentiation, and if we wait for a specific diagnosis of one of these conditions before instituting treatment our efforts are likely to be attended by failure.

The subject has been greatly simplified and from a therapeutic standpoint, the whole thing placed upon a better working basis by it having been shown that compression of the brain, either local or general, is the essential pathological condition to be considered, and that from a practical and working point of view it is the recognition and relief or prevention of this process towards which our efforts should be directed.

This compression of the brain may be produced by hemorrhage occurring at some point inside the cranial cavity, by depressed fracture, by oedema and swelling of the brain from laceration or contusion resulting from sudden violence without any fracture or hemorrhage in the same way that soft tissues in any other part of the body swell as the result of injury, or it may be due to a combination of these factors, and where the compression is primarily due to hemorrhage or depressed bone and is permitted to exist for a few hours it will usually be increased more or less by the added presence of an oncoming oedema. The compression may be sufficiently localized to cause marked focal symptoms with but slight symptoms of a general increase of pressure or the entire brain may be compressed either with or without focal symptoms. If this increase of the intracranial pressure is sufficient to cause displacement of the brain toward the foramen magnum, the medulla will be forced into it and be further compressed by the bony rim of the foramen, and if this medullary compression is severe enough and is permitted to exist an oedema of the medulla with a collapse of the functions of its centers will take place.

SYMPTOMS AND SIGNS.

There are numerous symptoms and signs in connection with brain injuries which might be mentioned, but in this paper I am only going to briefly mention the more important ones, as follows:

Shock: Almost all brain injuries which are severe enough to be diagnosed as such are accompanied by more or less shock, it may be very slight or severe enough to produce death.

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*Read before the Carlisle County Medical Society.

Temperature: During shock the temperature is subnormal, but as the patient reacts it rises to normal or above, usually ranging from 100-102 F. But if a medullary oedema supervenes it rapidly rises to 105 or higher.

Pulse: If the patient is in shock the pulse rate will be increased and the volume lowered in proportion. As the shock subsides the rate descends and the volume improves until something near normal is reached. Then if a definite increase of the intracranial pressure has taken place the rate will be further lowered, sometimes reaching forty beats per minute, depending upon the degree of pressure, and remain low until the pressure is relieved unless a medullary oedema comes on when it will rapidly ascend and lose its volume.

The pulse when it runs true to form as outlined above, which it ordinarily does, is a valuable symptom in these injuries, but like many other symptoms it has its exceptions and occasionally it will fail to keep pace with an advancing medullary compression and will beat at a normal rate with the brain under a high pressure. Furthermore, the appearance of an early medullary oedema coming on as the shock is subsiding will cause it to run high, preventing it from returning to a normal or below normal rate, but in this case it can usually be recognized, as the temperature will rapidly rise.

Respiration: In shock the respiration will be shallow and increased in rate and will return to normal as the shock subsides and remain normal or slightly below unless the intracranial pressure becomes extremely high when the Cheyne Stokes type of breathing is likely to take place as the result of medullary compression with alternate periods of depression and restoration of the circulation in the medulla. This is always a danger sign and medullary oedema is likely to come on at any time. The early advent of a medullary oedema may prevent the rate from returning to normal, but this can be recognized by the temperature which will be high.

Blood Pressure: The blood pressure will be low during shock, returning to normal as the shock subsides and assuming a compensatory increase above normal in the event an abnormal increase in the intracranial pressure occurs.

Unconsciousness: Immediate loss of consciousness but subsiding within a few hours and not followed by other symptoms usually signifies concussion. If the unconsciousness is delayed in coming on it nearly always means hemorrhage or oedema. Profound and prolonged unconsciousness usually indicates a high intracranial pressure or a severe destructive lesion, occasionally, however, a high pressure will be present and consciousness still be retained.

Focal Sypmptoms: Paralysis of muscles or groups of muscles, disturbances of sensation and loss or increase of reflexes when present are very significant of brain injuries and are valuable in locating the area of involvement.

Pupils: Dilated and sluggish pupils are usually present in shock, but return to normal as the shock subsides. A constricted pin point pupil means an irritative lesion on the same side, while a dilated and sluggish pupil means paralytic lesion on the same side.

Eye Grounds: Dilated retinal veins, blurring and obscuration of the optic discs or choking of discs as revealed by the ophthalmoscope are indicative of an increase of the intracranial pressure. It is usually at least three hours before this sign begins to appear and it may delayed much longer.

Lumbar Puncture Findings: The presence of blood in the spinal fluid is very significant and indicates bleeding from an intradural vessel. Absence of blood, however, does not exclude a brain injury of any type. Bleeding as a result of the puncture needle striking a spinal vein must not be confused with an intraspinal hemorrhage. The cerebrospinal fluid of an adult in the horizontal position is normally under a pressure of from 4-9 mm. Hg., and as the spinal canal communicates with the subarachnoid space in the cranial cavity an increase of the intracranial pressure produces a corresponding rise of the intraspinal pressure. This increase can be determined by taking the pressure with a spinal mercurial manometer. The increase may be very great, reaching 30 or 40 mm. Hg. in extreme cases. More often, however, the pressure in severe cases as ordinarily seen will not be higher than 20 or 25 mm. Hg.

X-ray Findings: The X-ray is frequently valuable in locating the brain lesion by showing the presence of a fracture of the skull which would in a way indicate the point of application of the force and which might also have an etiological relationship to the brain pathology on account of a ruptured blood vessel or pressure from depressed bone.

TREATMENT.

The treatment of these cases may be palliative or operative. In about two-thirds of all cases palliative treatment will be sufficient, while the other one-third will require operation and a large proportion of those requiring operative treatment will first require palliation. Cases of simple concussion and other mild cases with or without a fracture of the skull (with the exception of a depressed fracture, which should always be corrected), where there are no focal symptoms pointing to a definite cortical lesion and where the increase of the intracranial pressure is not great enough to cause more than a blurring of the optic disc nor a pulse rate lower than 60, and where the pressure of the spinal fluid is not more than 15 mm. Hg. will usually respond to palliative treatment alone. Sharpe considers a spinal pressure of 16 mm. as the dividing line between cases suitable for palliative treatment and those requiring operation. But where there are definite signs of localized cortical pressure and where there is a very slow pulse with choking of the optic discs and where the spinal pressure is 16 mm. or more a radical operation is indicated.

Palliative Treatment: The relief of shock when present should be the thing towards which our first efforts should be directed. A patient in shock should not even be subjected to a prolonged examination and no operation of any character should be atttempted at this stage regardless of the type of injury, as operative interference at this time would probably take away any chance of survival that the patient might have. The first thing to do is to relieve shock when present, then proceed with the examination and carry out any procedure found to be necessary. Keep the patient absolutely quiet, giving morphine if necessary for restlessness, apply external heat to the body, give hot rectal stimulating enemata and such drugs as camphor, strychnine and atrophine hypodermically when necessary. After the shock has sufficiently subsided to warrant it, produce free catharsis and apply cold compresses to the head, but these should not remain longer than one hour at a time without one-half intermission. Any tendency towards pulmonary oedema should be immediately met by full doses of atrophine. Urotropine can be given with a chance of doing some good in preventing infection, but it requires an acid medium for its effect, and as the cerebrospinal fluid is alkaline its usefulness is doubtful. Where the spinal pressure ranges from 10-15 mm. the daily withdrawal of 10 or 15 cc. or spinal fluid by lumbar puncture will frequently bring about a rapid improvement. This procedure is not entirely free from danger and should be slowly and cautiously carried out, especially where the pressure approaches 15 mm. on account of the possibility of the medulla being forced down into the foramen magnum and producing a medullary compression. Under no circumstances should this be restored to where the presseure is 16 mm. or higher.

Operative Treatment: Where there is definite evidence of localized cortical pressure from any cause operation for relief should be performed as soon as the general condition will warrant it, not only for the immediate effect, but to prevent any future trouble from cortical irritation. Where these cases are accompanied by extreme intracranial pressure it is some times necessary to first do a subtemporal decompression for the relief of pressure in order that the brain tissue will not be forced out through the opening in the skull. The subtemporal operation will also afford more relief from the general pressure by permitting better drainage.

Where the pulse rate is low and the respiration slow or Cheyne Stokes in type and where the eye grounds show evidence of greatly increased pressure and where the spinal pressure is 16 mm. or more a subtemporal decompression should be performed.

This is not only necessary for the saving of life, but also for the purpose of having a normal patient after recovery from the acute symptoms. Many of these patients who have high pressures and are permitted to drag through without being relieved suffer from chronic headache and exhibit a changed personality ranging all the way from slight nervous irritability to loafers and criminals. This is a very important phase of the subject and should not be overlooked.

The operation is best done through a straight incision in the direction of the fibers of the temporal muscle. The muscle fibers can be separated and retraced and an opening be made in the skull with a drill or trephine and enlarged as much as necessary with a ronguer. This opening should extend down to as near the level of the middle fossa as possible and then the dura incised in a crucial manner and a drain of rubber tissue placed beneath it and left for a couple of days. In extreme cases where the brain tissue tends to push through the opening the lateral ventricle can be puncturd and drained for the relief of this complication. It is sometimes necessary in the very extreme cases to do a bilateral operation, but where one side is sufficient it should be done on the right side in the right handed individuals to avoid all chances of injuring the speech center unless the symptoms point to a lesion on the left side, in which case the operation should be on the left side.

The subtemporal operation is the one of choice because it is over a comparatively silent area of the brain and also because it is a more effective region for drainage.

This operation when indicated should never be postponed until the pulse and temperature start rising and the blood pressure becomes lower which indicates an onset of acute medullary oedema and operation or no operation the patient is almost certain to die.

CONCLUSIONS.

1. From a therapeutic viewpoint compression of the brain either local or general, whatever may be its direct pathological cause, is the essential condition to be considered.

2. The treatment of acute brain injuries should be just as much in line with definite therapeutic indications as it should be in pneumonia or appendicitis.

3. All cases with well defined focal symptoms should be operated as soon as the general condition of the patient will permit.

4. All cases with high intracranial pressure demanding radical operation should be operated before a medullary oedema has time to take place.

CONSTIPATION.*

By C. V. Heistand, Campbellsville.

I have always had much respect for the small boy who, as the story goes, would not talk because he had nothing to say. If I were to exercise as rare judgment I would remain silent on the subject of constipation, because I know nothing to say that will give you any information on the subject. Since this theme was assigned me I can only offer you some thoughts and suggestions compiled from the medical literature to which I have access.

Constipation is a descriptive term of a loss, partial or complete, of a normal function, that is the result of such a variety of causes, dietary, physiological, anatomical and daily conduct, that the limits of one paper can refer only to some of the most salient points.

I think that we will all agree that this functional disturbance is rapidly becoming more prevalent, and a more perplexing problem to the medical practitioner, all the time, and ere long we will be like the French people are said to be—never troubled about bowel movements except when they take a day off occasionally to purge themselves.

In my opinion the two factors in our daily life that contribute most to the development of constipation are deit, not properly balanced, and irregularity of living habits, especially drinking the proper amount of water, eating our meals at regular hours, and taking a few minutes of each day for quietude and relaxation, to respond to the call of nature at the right time.

The discussion of constipation due to anatomic or mechanical causes, and those cases secondary to well defined diseases, properly fall under complications attending such conditions; therefore, we will now have to do only with chronic, habitual constipation, functional in character. Constipation is largely a product of civilization because of sedentary habits the tendency to live on the more concentrated, and easily digested foods, and those foods that leave very little residue in the intestinal tract, such as meats, eggs, and the concentrated, prepared, and partially digested foods. Of almost equal importance is irregularity in habits, eating, drinking and failure to give ready response to the natural call or inclination for an evacuation. The necessity for regularity in responding to the call of nature is so important that it was a favorite remark of Dr. Wm. Bailey, of revered memory, if the house was burning and the call came at the same time, first go to the stool and then put out the fire.

A frequent cause of habitual or confirmed constipation is the readiness to resort to laxative medicines, as soon as we feel any of the discomforts from delayed evacuations, instead of correcting the diet, or other causes of such delay. Thus we see that constipation is usually acquired under conditions which are more or less under the control of the affected individuals themselves.

While a daily evacuation is considered the normal many individuals attend to defecation at much longer intervals and are apparently normal. These intervals may be two or three days or a week, and a few individuals go a month or more and seem to suffer no inconvenience. Some of these people who suffer no special inconvenience from the delay should be let alone, as the effort to regulate their habits will cause more discomfort than they suffer from the delay.

In the matter of diet, the concentrated foods and those that leave little residue, such as meats, eggs, milk and starchy foods that are very much refined, will have a marked tendency to cause constipation, but diet is largely an individual matter, because some persons will digest practically all the food of the character mentioned above, while others will have considerable residue from such a diet. In the matter of regulating the diet for constipated indivduals we can proceed with some general principles, but these must be modified for individual cases. In some persons milk is quite constipating, while to others it has no such effect. Cream has something of a laxative effect to most people. Some persons eat any kind of meats without either laxative or constipating effect, but to others beef, chicken, or some other kinds of meats are laxative—in some instances becoming almost purgative.

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*Read before the Taylor County Medical Society.

Fruits and vegetables are laxative to most people, but there are many exceptions. As an instance, sweet potatoes are constipating to most people. There are many people who are made more constipated by most any kind of acid fruits. The effect of vegetables differ very materailly in different individuals, which is largely due to the digestive capacity of the individual. One individual will digest practically all sorts of raw or ordinarily indigestible plant foods, while others pass unchanged even well cooked vegetable foods. The hydrochloric acid of the gastric juice has an active influence on the digestion of vegetables. This acid loosens and partly digests the middle layer inside the cellulose sheath, between the vegetable cells, so that the vegetable cells are easily attacked by the alkaline juices of the intestines. The greater the quantity of hydrochloric acid in the stomach, the more complete the digestion of vegetables, and this is an explanation of the fact that persons suffering from hyperchlorhydria are usually constipated. Thorough cooking also loosens up the middle layer, from which fact we can deduce the practical conclusion that undercooking many vegetable substances is a valuable procedure in combatting constipation.

For convenience we may divide all cases of functional constipation into two classes. Class 2 includes those who, in addition to an appropriate regulation of their deit. Class 11 includes those who, in addition to dietetic rules, require medicinal or other treatment to secure relief.

The treatment of constipation by diet alone is successful in a large proportion of cases when it is properly directed and followed. In the attempt to give dietetic rules we should carefully consider the influence of different kinds of foods as to whether they tend to produce constipation or have a stimulating effect on peristalsis. In general terms we may say the albuminous foods tend to produce constipation, the vegetables and fruits to catharsis. The foods which leave little residue, such as meats, eggs, cheese, spaghetti, macaroni, milk, cocoa, chocolate, should be excluded from the diet or taken in limited quantities. Foods of astringent properties, such as tea and blackberries should be eliminated from the diet. The foods that leave considerable indigestible residue, chiefly cellulose, which by their bulk favor catharsis, and those foods that are laxative in nature, should form the chief food for constipated persons. Chief among the former we may mentioned the coarser grains, rye, oatmeal, corn, cabbages, brussel sprouts, turnips, string beans, kale, peas, rutebaga, oyster plant, squash, etc. The most common and easily procured of the latter are most of the fruits, especially oranges, grapefruit, apples, prunes, grapes, peaches, tomatoes, cucumbers, carrots, beets, onions, spinach and some other foods that are decidedly laxative, as honey, buttermilk, syrup and cider. Mineral oils are laxative, and butter, vegetable oils, suet and cream all favor peristalsis. Water taken freely also aids in overcoming constipation.

This all sounds easy and if we will only have our patients take the laxative foods mentioned above their constipation will fade away like the dew on a summer morning. But will it do so? Not unless we succeed in formulating a judicious mixing of the various foods as best suited to the individual. Buttermilk when taken alone may be constipating, but when taken in combination with other foods may be decidedly laxative. Gastritis and enteritis may be produced by indiscriminate combinations, as example ice cream with sour fruits, ice cream soda with fruit acids, milk with lemon or grapefruit juice, are all irritating mixtures and may be followed by intestinal disturbance.

As a tenative diet list I would suggest the following:

One glass cool water on rising.

Breakfast—Oatmeal, not too well done, graham or whole wheat bread, butter, coffee with cream and sugar, and raw or cooked fruit or marmalade.

Dinner—Fruit, two vegetables, cornbread, butter, buttermilk, meat occasionally and a dessert if desired.

Supper—Cornbread and butter, one or two vegetables, syrup or fruit sauce and buttermilk.

Whatever line of diet we may plan for a patient must be well mixed with brains or our patient may be made worse. Some patients can take very little or no acid fruits without suffering from dyspepsia and flatulance. The elimination of breads made from fine or patent flour from the deit is essential, but many patients do not take the whole wheat bread well because it is more difficult to digest. I cannot attempt to enumerate all the pitfalls into which we may stumble with our patients in trying to establish a proper adjustment of a diet, but careful study and a patient co-operation between the individual and physician will usually bring success.

The constipated habit has become so fixed in some individuals who have long been accustomed to the use of laxatives, that regulation of the diet is not sufficient to arouse an adequate peristalsis. Intestines that have been accustomed to the stimulation of purgative medicines cannot be aroused to action by the most carefully selected food, nor regulation of living habits. The treatment of these cases will require the help of purgatives, laxatives or some other means that will supply the necessary stimulation. Some constipated persons will get relief by simply drinking a full glass of water, cold or hot, regularly and systematically on rising every morning, and taking sufficient fluids with the regular meals. Others will require a small bit of sodium chloride added to the early morning drink. Many persons secure the same result by eating an apple, or other suitable fruit, at bed time or early morning. Laxative medicines are a necessary evil in the treatment of obstinate constipation, and, as such, should be used sparingly as possible, and withdrawn whenever they can be dispensed with.

It would be superfluous to enter into detailed discussion of the relative merits of the many drugs, and combination of drugs, that have been recommended and used. It is sufficient to say that Cascara, and some combination of aloes, belladonna, strychnine and ipecac have stood the test of time, and have hardly been surpassed by any other medicines. More lately the mineral oils have come into favor and deservedly so. The important desideratum in the selection of drugs for use in constipation is to use those that are least irritating in effect. They should produce results either by mechanical or lubricating effect, like the mineral oils, or should act by direct stimulation of muscular tone.

I want to bring the indictment against doctors, to which I plead guilty, that most often, when a patient comes to us complaining of constipation, we are content to prescribe some laxative, and are satisfied with the temporary relief we give. Every patient should be fully advised as to the effect of the different kinds of food, and impressed with the importance of a properly balanced diet.

After all our best efforts we will fail, in many individuls, in giving the relief sought. This is usually due to the fact that very few persons will follow directions in regard to the kinds of food that should be eaten, how much water should be taken, the regulation of living habits, and the proper amount of exercise. The faith of the laity in medicine is such that they expect the doctor to cure their constipation with medicine, but that he cannot do, and when he fails it is but natural to turn to patent medicine for relief because they will guarantee a cure and money back if not satisfied.

Most persons who are sick in bed, or seriously ill in any way, are ready to follow the physician's directions scrupulously, but when not very sick they become careless and forgetful. To the latter class belong most constipated persons so that with our negligence and their indifference our failures are many and our cures are few.

A PLEA FOR THE EARLY DIAGNOSIS AND TREATMENT OF HYPERTHYROIDISM.*

By C. W. Dowden and C. D. Enfield,
Louisville.

It is now almost 100 years since Perry described exophthalmic goiter as a clinical entity in 1825. However, until comparatively recent years it has been possible to recognize the disease with any degree of certainty only in its fully developed form when the classical picture, including thyroid enlargement, exophthalmos, tremor and tachycardia is present. Osler in 1911 pointed out the desirability of earlier recognition of these cases before irreparable damage has been done to the cardio-vascular mechanism, but the means were not then at hand to accomplish this with any degree of certitude.

Aside from the rare, acute cases in which the full symptomatology of the disease comes on in a few weeks, the almost invariable mode of onset is very gradual with months and often years intervening between the first appearance of the first symptom and the complete development of the picture. As McKenzie has so wisely said, probably the greatest opportunity for progress in medicine at the present time lies in learning to recognize disease by symptoms alone before the physical signs which are as a rule dependent upon more or less permanent damage to the tissues have had time to appear.

It is particularly true of hyperthyroidism that treatment to be entirely satisfactory to either patient or the physician must be instituted in the earlier stages of the disorder, before any organic damage has been done. The recent advances in endocrinology have centered very largely upon the thyroid, in regard to which more definite knowledge has been acquired than about any of the other glands of internal secretions. Particularly with regard to the diagnosis of hyperthyroidism and hypothyroidism the perfection of practical apparatus for determining the basal metabolic rate has been of inestimable value. Within the past two or three years the use of one form or another of this device has become very widespread and descriptions of the mechanism itself and of the technique of its employments have appeared so frequently in the literature that no detailed account of either will be given at this time. The combined experience of many users of this method has crystalized opinion as to its worth into the feeling that any definite increase, that is to say, an increase of over 10% or 12%, in the basal metabolic rate, in an individual who is afebrile, signifies an increased production of thyroxin. Conversely a rate more than 10% or 12% below normal will in the large majority of cases signify hypothyrodisim although occasionally it may be traceable to other conditions, such as hypopituitarism. We do not know that the increase in the metabolic figure is always necessarily directly in accord with the degree of thyrotoxicosis, but it has been definitely demonstrated that an injection of a given amount of thyroxin intravenously will cause, in normal individuals, a corresponding and definite increase in the metabolic rate which lasts for practically a uniform length of time. It is, therefore, reasonable to assume that the degree of thyrotoxicosis and the increase in the basal metabolic rate are in quite close accord. We have found in our own work that the readings are uniformly accurate and in accordance with those of other observers, even though the patient forgoes the usual prescribed twenty-four hour hospital period prior to the examination. It has been our practice to have patients come to the office without breakfast and with no other exertion in the morning than necessitated by the trip from the home or hotel to the office; then to have them rest on a couch for an hour before proceeding with the basal reading. In this way we feel that we save the patient the expense and discomfort of the hospital stay without any sacrifice in accuracy of the test.

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*Read before the Jefferson County Medical Society.

In our experience the subcutaneous injection of .5 cc. of 1-1000 Adrenalin solution followed by 15 minute observations of the pulse and blood pressure together with observation as to the development of tremor during this period has been of very little value in the diagnosis of hyperthyroidism. While it is probably true that a large majority of cases of over-functioning thyroid give a positive response to this test, there is also a considerable percentage of cases giving an equally positive response without, however, having any increase in the basal rate or other evidence of thyrotoxicosis. These cases are usually of a neuro-circulatory asthenia type, but in some instances merely neurotics. It would seem, therefore, that if the test has any value at all it must be in a negative way since some doubt might arise in cases in which were clinically clearly hyperthyroidism and in which the Adrenalin test was negative. In such an instance the basal metabolism determination should clear up the doubt. We believe that the test probably has a certain value in determining the operability of the patient regardless of whether he has thyrotoxicosis.

A third test which has been much used and which we believe to be of distinct value in the early diagnosis of these conditions is the sugar tolerance test. It seems to be fairly well established that in hyperthyroidism there is a decreased ability to store sugar and after the ingestion of glucose there is a considerable rise above the normal in the quantity of blood sugar, which hyperglycemia is maintained for two or three hours, while at the same time sugar appears in the urine. In normal individuals, on the contrary, the highest blood sugar reading is reached at the end of an hour after the ingestion of the glucose, and at the end of two hours the figure is practically normal again. Moreover, the high point in a normal individual does not rise to nearly the figure that is obtained from hyperthyroid cases. The technique consists simply in giving the patient 11-2% grams of glucose for each kilogram of body weight, the glucose being administered in solution and as a rule flavored with lemon juice. This is taken on a fasting stomach and urine and blood specimens are obtained just prior to the administration of the sugar, one hour afterward and two hours afterward, and in some instances a fourth blood specimen may be taken if the hyperglycemia is being maintained. Sugar normally breaks over into the urine whenever the blood sugar reaches a concentration greater than 170 mg. per 100 cc. In these tests it is the blood sugar curve which is characteristic, going in hyperthyroidism considerably higher than normal, and remaining at a high level longer than normal. This type of curve, according to our own experience, and also according to the work done several years ago by Dennis, Aub and Minot and later on confirmed by Morris, seems to be a quite constant finding in early thyrotoxicosis and furthermore seems to bear a definite relationship to the basal metabolic rate. We should not, however, feel satisfied to diagnose hyperthyroidism on a blood sugar curve alone unless it was later confirmed by an increased basal rate. On the other hand, there is a type of hyperthyroid individual showing a markedly increased basal rate, without, as a rule, clinical symptoms of thyroid over-function in which the blood sugar curve is normal. Confirmed by the basal metabolism reading we feel that the test is of distinct value.

An early hyperthyroid patient often appears with a self-made diagnosis of any one of a number of conditions which have no relation whatever to the actual situation, but which resemble it in one or more striking symptoms. From a weight-loss which is not infrequently the first symptom of thyroid intoxication together with a flushing and feeling of fever which is quite apt to accompany it an individual may imagine that he has tuberculosis. An increased heart rate will tend to confirm him in this impression. On the other hand, if a tachycardia comes first he may consult a physician with the impression that he has a primary heart disturbance. If the patient, as is more often the case, is a woman in early adult life, a growing irritability of temper, unsteadiness of the hands and the general group of phenomona described by the laity as ''nervousness'' may bring her to her physician as a neurotic or a psychasthenic. Again, an increase in the menstural flow may cause her to think that her trouble is primarily pelvic in origin. More rarely the first symptom may be a diarrhoea, in which case the difficulty will be attributed to the gastro-intestinal tract, and more rarely still an abnormal pigmentation of the skin which may be thought to be a purely local affair constitutes the initial symptom.

Similarily, it will be necessary to rule out all of these conditions in the differential diagnosis of patients presenting themselves with ill-defined vague symptoms suggestive of an early stage of hyperthyroidism. It is possibly in these conditions that the basal metabolism test has shown its greatest and most dramatic field of usefulness. To be able to say definitely and positively as we feel we are now able to do, that a young woman with a somewhat enlarged thyroid, with a rapid heart rate, a low blood pressure and a prononnced tremor, is not at the beginning of a thyrotoxicosis is very comforting both to the physician and to the patient and puts the former immediately upon the right track as to treatment.

However, when with any of these suspicious physical findings or histories an individual shows a definite increase of more than 12% in the basal metabolic rate, and if in addition the adrenalin test and the sugar tolerance test are confirmatory, what stand are we to take in the matter of treatment? Of the almost numberless medical treatments devised for this condition it may be safely said that none has stood the test of time and experience. Rest and an ice bag over the heart, together with the administration of quinine hydrobromide have sufficed very often to hold symptoms in check for a time or to put the patient in better condition for operation. Further than that this regime apparently does not go. There remain as the two accepted present-day therapeutic methods surgery and radiotherapy.

Crile has recently presented a summary of the relative advantages and disadvantages of surgical and X-ray therapy (Journal of the American Medical Association, Volume 77, Number 17), under the heads of Discomfort, Period of Disability, Mortality and End-Results. He states that there is little discomfort connected with the operation and relatively little afterward, concluding that surgery is not materially more painful than X-ray. This is certainly a strong statement, since there is no discomfort whatever connected with X-ray treatment.

With regard to the period of disability he states that the total average hospital confinement for a large series of cases was twenty-five and one-fourth days. Presumably this means an absence from work or other activity of at least one-half again as many days. The average early case under X-ray treatment loses no time except what is actually spent in attendance upon the radiologist; that is to say, perhaps altogether six to twelve hours. With regard to mortality he states that in 500 thyroidectomies and 500 ligations there were five deaths from the thyroidectomies and two from the ligations. Inasmuch as these figures are based upon the technique of preliminary ligation, followed by sub-total thyroidectomy, it is presumed that the seven deaths occurred in the same five hundred patients. There is, of course, no X-Ray mortality at all. With regard to end-results, Crile states that surgery is by all odds the most curative method.

In this connection we wish to submit that the average individual whose early diagnosis we are pleading for, namely, the patient with early mild symptoms which do not as a rule incapacitate him for work or ordinary social activities, but merely put him decidedly below par in relationship to his environment, and which moreover carry a threat of future disability which is in its nature far more patent to the physician than to the patient himself, no matter how sincere an effort is made to bring it before him, will, as a rule, not submit readily to surgery at this stage. In our experience and in that of a very considerable number of other workers radiotherapy offe a very real hope of relief if not of complete cure. In view of the occasional reports of permanent myxedema following X-ray treatment, and since a wide experience on the part of a number of observers has shown that the basal metabolic rate can be brought to normal by properly regulated radiotherapy in most cases of hyperthyroidism, it seems unlikely that anyone will continue much longer to take the stand still held by some surgeons, that they "have seen no benefit from X-ray treatment of the thyroid gland" in these cases. On the other hand, radiotherapy offers certain advantages over surgical methods of treatment in that the procedure as ordinarily practiced is not a single mass attack on the disease, but rather an attempt to bring the thyroxin balance to normal by a very gradual impairment or lowering of the activity of the gland, consequently it becomes feasible to measure the results obtained from time to time by means of the basal metabolism test as well as by pulse rate and symptoms, and to stop short of producing a myxedema, an unfortunate result which occasionally comes to the most careful surgeon. On the other hand, should the X-ray treatment fail, as no doubt it sometimes does, to produce a cure, there is still open the recourse of surgery, and the contention is not now often made that surgery is any more difficult in cases which have been previously X-rayed. With such premises on which to found a choice, it seems likely that the average exophthalmic goiter patient, and certainly those with mild or early hyperthyroidism will prefer to try radiotherapy first.

The technique which we have used is given for whatever interest it may have. We have first made the basal metabolism test and usually also the accompanying Goetsch test and sugar tolerance examination, following which in suitable cases the thyroid is X-rayed in the following manner. At each seance three areas are treated, one on the right over the thyroid going to the middle line, one on the left also going to the middle line, and a third over the thymus region. A current of 80 kilovolts (about 8 1-2 in. spark gap) is used, five milliamperes, 12 inches anode skin distance, four millimeters of aluminum and one centimeter of sole leather and ten to fifteen minutes exposure being the other factors. These treatments are given at intervals of a week or ten days, and an observation of the pulse rate made at each visit. Unless the latter drops sharply after the first three or four treatments, as sometimes happens, six such treatments are, as a rule, administered. A period of two to three weeks is then allowed to elapse and the metabolism test is repeated. Should this show a return to normal or approximately normal a period of three months is allowed to pass when the test is once more repeated. If, however, after the first series, the basal metabolic rate is still high a month's rest only is given and a second similar series is started. In our experience is has not been necessary to give more than two series, and in the cases so far treated the results have been decidedly satisfactory, resulting in at worst a decided measure of relief, and at best in a complete cure so far as the symptoms and laboratory tests are able to determine. The oldest case in our series was one on which the treatment was complete two years ago. Concise reports of a few cases are appended.

Case Nos. 1, 2 and 3 are the first in which the X-ray treatment technique above described was used. They were quite pronounced cases in which the diagnosis was made clinically, the basal metabolism apparatus not being available at that time. Cases 4, 5, 6 are recent ones of milder type in which the diagnosis was clinched by an increased basal metabolic rate.

Case I—Mrs. J. A. K., female, married, age 40. First seen August, 1919. Came complaining of symptoms referable to the heart. Pulse 145 to 175, irregular; marked characteristic tremor; marked exophthalmos; eye signs present; considerable thyroid enlargement; weight 82 pounds; entirely unable to attend to household or social duties. Given two courses of X-ray treatment as above described, in all twelve treatments. Reports by letter December 15, 1921, that her weight is 110 pounds, pulse 75-85; thyroid enlargement no longer noticeable, exophthalmos less, tremor nearly gone, able to attend to all her household duties. "Feels better than for 20 years." Basal rate January, 1920, was plus 8%.

Case 2—Mrs. C. F., married, age 23. First seen October, 1919. Came on account of irritability and insomnia. Thyroid moderately enlarged; pulse 120 to 130; marked tremor; moderate exophthalmos; eye signs positive; weight 115 pounds, being about 20 pounds less than normal. Given one course of six treatments, followed by a later course of three treatments. Reports by letter December 8, 1921, pulse 90 to 95, tremor entirely gone, thyroid enlargement no longer noticeable, exophthalmos unchanged, weight 135 pounds. Feels perfectly well. Basal metabolism in December 1920 was 2%.

Case 3—Mrs. C. L. B., married, age 36. First seen in November, 1919, came because she suspected that she was developing tuberculosis. Weight 108 pounds, 22 pounds below normal; moderate thyroid enlargement; marked tremor; pulse 100 to 110. Was given one course of six treatments. Reports December 20, 1921, that she feels perfectly well; pulse 75 to 80; no tremor; weight 135 pounds, thyroid normal in size. No basal metabolism test was obtained in this case at any time.

Case 4—J. A., male, age 64. First seen September 15, 1921, submitted to examination on account of enlargement of the thyroid and rapid irregular pulse, being obliged on account of heart symptoms to restrict his activities considerably. Pulse rate from 95 to 110; basal metabolism rate was 29%. Was given one course of six X-ray treatments after which experienced marked clinical improvement. December 10, 1921, basal rate was plus 16%, pulse 78 to 80 in the erect posture after an active day's work; feels perfectly well.

Case 5—Mr. E. B., age 51. Came first on account of heart symptoms and high blood pressure in 1918. Early in 1921 developed symptoms suggestive of hyperthyroidism in addition to the former trouble. Three basal metabolism determinations at intervals of two or three weeks, gave readings from 21% to 25% above normal, first being recorded on April 4, 1921, and the third on August 24, 1921. Was given one course of six X-ray treatments. On October 24 a basal metabolism test gave a rate of 7.8%. There was also a marked improvement in the symptoms.

Case 6—Mr. E. M., age 23. Reported on account of weight loss and nervousness in September, 1921. Had lost some 20 pounds in weight in a few weeks. The basal metabolism test done at this time gave a reading of plus 25%. Was referred for X-ray treatment and was given six treatments. Gained constantly in weight and improved in symptoms during the course of the treatment. On November 2, 1921, after completion of the X-ray treatments a second metabolism test showed a rate of 48%. The weight at this time was normal.

Causes and Treatment of Sterility in Women.—While admitting the difficulty of judging the causes of sterility in a given case, Winter thinks that he gives therewith an accurate idea of the relative frequency of the various causes of sterility in women: Out of 178 cases of his private and clinical material, he states the cause of primary and secondary sterility to have been as follows: infantilism, 18 cases; colpitis, 1; stenosis of the external os, 17; stenosis of the cervical canal and os interum, 22; catarrh of the cervix, 5; endometritis, 17; parametritis, 7; perimetritis, 5; anteflexion of congested uterus, 12; retroflexion of the uterus, 14; lateroversion of the uterus, 3; carcinoma of the uterus, 1; myoma, 10; adnexa affections, 34, and perineal tears and prolapse, 12.

DIAGNOSIS AND TREATMENT OF ENCEPHALITIS*.

By John J. Moren, Louisville.

The Louisville Board of Health informs me that the most frequent errors in diagnosis have been in differentiating encephalitis from autotoxaemia in children, uremia in women, tuberculosis and syphilitic meningitis. As these four diseases furnish an opportunity to discuss most of the symptoms of encephalitis, I thought it well to limit my remarks to their discussion.

Many conditions are to be considered in a diagnosis, especially meningeal complications in infectious diseases, as typhoid, pneumonia, mumps, influenza, malaria, etc. A diagnosis is reached by exclusion, and sufficient time is required to make this exclusion. It must not be forgotten that encephalitis or brain involvment may follow these infections, leaving behind epilepsy, mental defects, or paraletic patients, but this type is not that which is now spoken of as epidemic encephalitis, or encephalitic lethargy. Acute hemorrhagic encephalitis is frequently ushered in by convulsion, and not accompanied by the lethargic state, as in epidemic encephalitis, neither do you find the eye symptoms as frequent.

Epidemic encephalitis is conceded to be an infectious diseases. Post-mortem examinations have showed the effects of the infection in many organs of the body. These changes are slight in comparsion to those of the nervous system. Consequently we must look for symptoms of a general infection with localized nerve signs.

Before symptoms of a diagnostic value can be determined, we must have a clinical picture, gained either by personal experience or from the medical literature. Regardless of the number of special articles dealing with this subject, no positive clinical picture has been advanced which will cover the many so-called varieties. However, there are sufficient reliable symptoms when grouped together lead one to a resonable conclusion in most instances.

The first important fact that we must remember is that we are dealing with an infectious disease, and as in other diseases, we have variations in onset, and general symptoms arising from disturbances of body functions. Some react with high temperature, some with pain, others with delirium, etc.

So with encephalitis, the general symptoms from infection vary, some cases beginning with positive nerve symptoms, while others show general symptoms for several days previous to the onset of nerve symptoms. As a rule the onset is gradual, headache, some general pain, visual disturbances, or drowsiness, extending over a variable period of time; however, an abrupt onset may be noted. There is quite a diversity of opinion as to the history of an acute illness previous to the onset of symptoms of encephalitis.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 1921.

Personal experience leads me to believe that this is a question pertaining to the prevailing epidemics. One season you may have a clear history of a previous illness, in others no such history is obtained.

The history of the patient previous to the onset is important. Very little has been written about any predisposing factors in encephalitis. Lepine has mentioned excessive mental and emotional strain, and the menopause in women. Various exciting factors as injuries, frights, overdose of drugs, bad whisky, surgical operations, etc. have been mentioned.

The point of interest which I wish to impress upon you concerning the importance of this history is the apparent severe and unusual clinical picture which follows such slight or unrelated, though apparent causes. As an illustration: a man receives a slight injury to his leg. Next day he has pain which spreads to all extremities, develops muscular twitching, fever, lethargy and coma. A similar case follows on inhalation of chlorine gas. A young woman has headache, fever and prolonged lethargy, following currettage. This point in the diagnosis has helped me on more than one occasion.

As to clinical signs no one symptom is diagnostic, unless it be the type and duration of lethargy. Even this is found in varying degrees in many conditions. All other symptoms are found in other pathological conditions arising from lesions of the particular area. The grouping of the symptoms, and the time of their appearance, and the duration, is the diagnostic criterion of encephalitis.

When you consider that this disease may involve an isolated area of the cerebro-spinal nervous system, or the brain and the cord at the same time, you can readily appreciate that the symptomology in individual cases is liable to be quite different. However, when you consider a case with general symptoms of a general infection, as headache, vague pains, malaise, temperature, followed or accompanied by diplopia and lethargy, you are contending with a condition where the infection has centered in or near the basal gangalia of the brain. Another picture would be the general symptoms with individual muscle twitching, myoclonus and delirium, which shows a cerebrospinal involvement. Many combinations may be manifested which has led to the clinical types choreiform, myoclonic, cataplectic, psychic, paralytic, neuritic, spinal and paralysis agitans, etc.

LABORATORY FINDINGS.

The laboratory findings in encephalitis are not at all diagnostic. The urine shows nothing unusual, except occasional presence of albumin, or a few casts which are noted in many acute infectious diseases. The blood examination in a good per cent will show an increased number of white blood cells, ranging anywhere from 10,000 to 30,000. This leukocytosis is usually noted in the early stages. Otherwise there are no blood changes.

A great deal of investigation has been made upon the cerebro-spinal fluid, but nothing characteristic has been noted. It is always clear, but a slight increase in pressure. An increase of mononuclear cells, globulin and sugar. None of these changes are striking and frequently absent. In fact, many show a normal cerebro-spinal fluid. An increase of sugar content seems to be the most suggestive finding, but a diagnosis cannot be based upon laboratory findings. Taken with the clinical signs they are suggestive, but not conclusive.

TUBERCULAR MENINGITIS.

The majority of cases of tubercular meningitis occur between the ages of 2 and 15. Some writers have placed the ocurrence of encephalitis at 40 per cent under ten years of age. No other author has mentioned such a high percentage in children. As in poliomyelitis, it is not the delicate or frail child that suffers from encephalitis. Out of more than fifty cases seen by the writer not one could be considered other than a previously good healthy child. Neither can I recall any occurring in tubercular families. More or less inflammation of the brain occurs in any form of meningitis, but the meningeal symptoms predominate in the clinical picture. While in encephalitis meningeal symptoms are absent, or only ill defined, and not constant. Stiff neck, Koenig sign, or positive ridigity rarely occur. In severe cases some stiffness of neck and a suggestive Koenig may appear for a short time, but rigidity of the extremities does not occur. We should not interpret the apparent stiffness of the muscles, which is noted in encephalitis cases, as spasticity or rigidity of pyramidal tract lesions. It is not a hypertonicity of muscles. It may be described as a muscle set, as it were, and the patient has difficulty in contracting or relax-ing it. When once started they perform any motion, though slow. In some instances it is a feeling of stiffness.

The onset of tubercular meningitis may appear to be rather abrupt, with convulsions, etc., but on investigation you will usually find a period of time of restlesness, irritability, headache, the child has not been well, which is not the rule in encephalitis, unless a pervious illness, as influenza or other diseases were present.

The time of occurrence of symptoms is important. For instance, somnolence may be only slight in the early stages of tuberculosis, finally terminating in coma. Along with this we have the paralytic symptoms in keeping with the tubercular process. While in encephalitis paralytic symptoms may precede the somnolence, and the lethargy never becomes as profound as the coma in meningitis. The temperature in tuberbulosis usually increases as the process extends, while in encephalitis the highest occurs in the early stages and subsides. Normal or elevated pulse rate is the rule in encephalitis.

In severe encephalitis cases and rapidly developing tubercular meningitis the diagnosis might be more confusing. In this instance the increase of leucocytes and cerebrospinal fluid findings would aid in the conclusion.

The book picture of tubercular meningitis is prodominal or invasion, irritation and paralytic stages, with patient growing worse. In encephalitis prodominal paresis of cranial nerves, lethargy and improvement of patient.

SYPHILITIC MENINGITIS.

In syphilitic meningitis we have a characteristic gummatus inflammation, with a tendency to spread or enlarge. If the process extends symptoms will show the progress, and if the enlargement encroaches upon the cavity of the skull, pressure symptoms will appear, which are not seen in encephalitis. The severe headaches, and tendency to remissions are not seen in encephalitis, but to the contrary they reach their height and either disappear or continue, varying only with the progress of the patient. Recurrence of encephalitis has been reported, but the interval between has been longer than that of syphilitic remissions. Syphilis usually strikes the base, involving the space between the peduncles with early involvement of the third nerve. Somnolence may occur, and even slight temperature—a picture quite suggestive of encephalitis, but you note a wide variation in the pupils, possibly a loss or hyperactive tendon reflexes, indicating either a spinal or cerebro tract lesion.

The cranial nerve signs in cerebral syphilis are usually unilateral, and typical of organic diseases, while in encephalitis they are bilateral and variable. Irregular pupils do occur in encephalitis, but not as frequent as in syphilis or other organic diseases. Sensory symptoms occur more frequent in syphilis than in encephalitis.

The Babinski or Koenig sign is not as constant or typical. The syphilitic somnolence is more a desire to remain quiet, and when the lethargic state is present they do not arouse with the mental clearness as in encephalitis.

On learning the history you usually find that the patient has not been well, has had headache, lacking in mental capacity, not up to the standard.

The blood findings are important and conclusive, but a syphilitic patient can have encephalitis under such circumstances, and the diagnosis is based upon the clinical picture.

If the patient's symptoms clear up under specific treatment, it is syphilis, as encephalitis is not affected by drugs.

UREMIA.

The blood pressure, urine and blood findings would seem to be sufficient to decide this question. Low blood pressure and negative urine, and possibly slight leucocytosis are the rule in encephalitis.

Several years ago I was confronted with the question, do uremic patients run fever? Some do. The uremic breath may be confused with the very foul breath of encephalitis. Accelerated pulse and profuse perspiration are common in encephalitis. There are some features about the lethargy state that are somewhat characteristic. These are the abrupt onset, the ability to hold the attention when aroused, showing an absence of disturbance of conscience. The appearance of the patient and clinical signs are not in keeping with the apparent deep sleep or lethargy of the patient. As the patient nears death or in the fulminatory cases, patient becomes unconscious and cannot be aroused. In somnolence or comatose states, as seen in the uremic, consciousness is affected, and instead of answering questions intelligently they are unreliable. The general appearance of the patient is worthy of note. The putty skin and probably edemas are not seen in encephalitis. Their facial expression is not one of suffering, but mask like, even when aroused. Convulsive seizures should lead one to consider uremia.

In those cases of uremia with light delirium should not cause confusion when renal findings are positive.

The history of patient would be important in uremia, as some manifestation of ill health would be noted, extending over a longer period than is usual in encephalitis.

AUTOTOXEMIA IN CHILDREN.

Autotoxemia in children is a digestive disturbance, consequently digestive symptoms are common. Such conditions give rise often to convulsions, vomiting, high temperature, with symptoms referable to the alimentary tract, not necessarily manifested by nerve symptoms, unless they should arise from complications. Somnolence and coma may be manifested, but they are deeper, harder to arouse. Consciousness is actually disturbed more than in the lethargy of encephalitis.

In those conditions approaching the tetany type, there is a rigidity of the whole body. They may have muscular twitching, which could be confused with the isolated muscular contraction found in the myoclonic type of encephalitis, but you do not have the marked rigidity in encephalitis.

I appreciate my shortcomings in interpreting symptoms in childhood, but I would think that there should be little trouble in distinguishing between autotoxemia and encephalitis in any type. Digestive disturbances are not the rule, or at least do not take a prominent position in encephalitis, neither do they manifest vomiting, tendency to convulsions or respiratory disturbances in the early stages as do many other diseases in childhood.

The season of the year is important as encephalitis prevails mostly in spring months and digestive disorders in warm weather. I would think the rapid improvement from purgation would be important, as abortive cases of encephalitis are rare and questionable.

TREATMENT.

No positive results to my knowledge have been accomplished by any therapeutic procedure. Many suggestions have been made, many drugs have been used, but no collective reports have shown results.

Netter of France has reported success from fixation abscess by injection of turpentine. Hexamethylenamine has been the most universally used drug. Whether it has any effect is only an opinion. Various vaccines, serum of convalescent patients have been used. The new arsenic compounds have been tried without result, but no one particular remedy has been found reliable.

Treatment thus far has been systematic and impirical. For the relief of symptoms many drugs have been used, even to the glandular extracts, but as far as I know only palliative results have been accomplished. Nothing affects lethargy. One suggestion which I have noted, and will try is digitalis. On account of the low blood pressure, profuse sweating and relaxation, this drug might do good. Atropine and scopolamine have been used in the chroreic type, and for the tremors and athetoid movements. Some observers think well of this. Nothing seems to influence the temperature. Sponging has seemed to make my patients more restless and uncomfortable. This observation was commented upon by nurses. The acceptive procedure is to keep the patient in bed, with a light but nourishing diet, and meet the indications as they arise. For the sequela no drug is reliable. The most important and reliable procedure I know is to make an effort to overcome the attitudes and movements by light employment and play. The best results noted so far have been in those who got up and tried to do. It is a question of re-education of associated movements and control.

DISCUSSION:

Curran Pope, Louisville: We must not allow as good a paper as Dr. Moren has presented to us to pass without discussion. It will not do. I do not know that I have anything exceptionally good to offer except one point. I think one of the very strongest diagnostic points of the profession with regard to encephalitis is this: We are more likely to diagnose it if we are awake to the possibility that encephalitis may be present. I think the grouping of the symptoms, especially those of the ocular type, will do more to lead us in the right direction than anything else.

I am extremely sorry to puncture that hopeful little red balloon of Dr. Moren's, but I will have to do it. I have tried digitalis on two or three occasions myself, and I can assure him that it is not of the slightest value whatever, and in some instances—in two of these three cases—it did not even seem to bring about lowered blood pressure. It seems to me we have nothing in the world to do in these cases except to do the best we can in meeting the symptomatic conditions that are present. I do not think I have seen as many cases as Dr. Moren has, but I have seen quite a few. I do not think I have been able to suggest anything other than that ordinary common sense and the care of the patient symptomatically should be carried out in dealing with these cases.

John J. Moren, Louisville (closing): The only point I have to add to what I have already said is that I am very pessimistic about encephalitis. We have all seen these horrible pictures which would make anybody pessimistic.

It literally transforms the individual affected and practically destroys him. I have one man under my care who comes in to see me every once in a while because I want to watch the progress of his case. He had total fixation of both eyes; he could not move his lids hardly, but he began to improve and today he looks more like a natural man. He is absolutely the only case that has made a cure, if I may call it such. You take these little children and you see them transformed into the picture of an old person with the picture of paralysis agitans, or you may take a young girl who is bright and energetic, with splendid facial expression, and have her come in with this picture of paralysis agitans, throwing out her hands or moving the leg, and the other leg possibly having a peculiar stiffness. There is absolutely nothing to do in such cases; no one knows anything to do, and I would urge you to take my advice and watch your cases of pregnancy, watch your cases of surgical operation. I know a case of appendicitis in this city that was reported as an unusual case of that disease. The patient had pathology in the appendix, but that man, as sure as I am talking to you here, died of encepahlitis and it was never recognized.

CANCER OF THE LARGE INTESTINE*

By G. A. Hendon, Louisville.

Cancer of the small intestine is relatively rare, hence the title of this paper.

Location: Following in the intestine, as elsewhere, the inexorable law and the invariable rule of cancer, it is located in regions of the gut subjected to the stress of irritation. Illustrative of this fact we find it most frequent at the point where the dilatation of the rectal pouch begins its expansion, the irritation being supplied by the retained contents of the rectal pouch backed upward against the narrower portion of the bowel. The retained mass in postponed defecation is moved up and down against the upper segment of the gut by excursions of the levator ani, together with normal movements attendant upon respiration, laughing, coughing, etc. The next most frequent location is where the sigmoid and rectum join and which lies over the brim of the pelvis. At this point the element of irritation is supplied by the passage of the fecal current impinging the bowel wall against the underlying hard surface of bone. Also the rectum being comparatively immobile and the sigmoid possessing a wide range of mobility there results a tugging effect at the point of juncture, which produces in turn a slight but constant trauma.

The next frequent site is the cecum. Here the element of irritation is contributed by the fecal contents from above, being projected through the ileo cecal valve and striking with appreciable force against the opposing wall of the gut.

An etiological factor of great importance in determining the location of cancer in the large bowel is to be found in the fact that the contents of the large intestine are acid in reaction.

Acidity is the universal antagonist of life, animal and vegetable, and acts as an irritant whenever they are brought into contact. The damaging influence of the presence of a chemical antithesis not only irritates but seriously disintegrates the tissues going to make up the bowel wall.

X-ray work has demonstrated that the large bowel throughout is prone to mucus and muscular defects which invite incarceration of fecal material. This condition is known as diverticulosis and has come to be understood as a common infirmity of the big gut. The diverticula often become the foci of a low grade infection which by reason of its irritating qualities passes into malignancy. This accounts for frequent malignancy of the sigmoid, where diverticula are most often found.

The contents of the large bowel observes varying degrees of solidity, thereby furnishing an irritating factor on account of a body of greater density moving against the mucous membrane lining the gut. Moreover, the colon being a provisional organ and not contemplated in the original design of corporeal existence lacks the robust resisting power possessed by structures whose ontogenesis traces back through all the evolutionary stages of development to the most primitive era of vital existance. Tissues everywhere that are either vestigial or provisional are an easy prey to dyscrasias of the flesh.

Symptoms: It is my purpose to deal only with incipient symptoms and to avoid the confusion that might result from mixing them with terminal manifestation. In carcinoma of the rectum the earliest symptoms are, according to G. S. Hanes, constipation and loss of weight. The diagnosis can be very readily confirmed by digital and proctoscopic examination. It should be urged as a part of the modern propaganda that a person suffering from constipation and loss of weight should seek physical examination at the hands of a competent physician.

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*Read before the Hardin County Medical Society.

The symptoms when there is involvement in the sigmoid are those of incomplete obstruction, namely, slow response to purgatives, vaguely located abdominal pain, bloating, belching of gas and indigestion. All this group of symptoms are the result of a reverse peristaltic wave. There is often present diarrhoea alternating with constipation and on rare occasions blood in the evacuations. The symptoms herein described manifested by a person beyond middle life and enduring over a period of thirty days with fairly constant regularity are ample justification for an exploratory laparotomy. The X-ray is of considerable value in aiding us to determine cases of partial obstruction. If in the presence of the symptoms noted above the X-ray and Barium meal fail to show points of stasis I would proceed with the operation just the same as if it did. The X-ray is valuable because in the event of positive findings the location of the obstruction is apparent before the abdomen is opened; a circumstance which affords the operator greater assurance and the patient more courage. It is at the present time one of the saddest misfortunes of surgery that cases of operable intestinal cancer are not suspected until they proclaim their presence by producing a complete acute obstruction of the bowel. It has been my privilege to discover three intestinal cancers in the last six months while operating for more obvious conditions in the abdominal cavity. Two had uterine fibroids and one an ovarian cystoma. In these three cases malignancy of the bowel was totally unsuspected until the operation revealed its presence. I also had one case which I diagnosed as gallstones, but operation disclosed cancer of the cecum.

Acute intestinal obstruction is the most frequent announcer of intestinal cancer. The symptoms of incomplete obstruction, preceding the total occlusion are usually ignored or misinterpreted and charged off as indigestion. I operated at the City Hospital last winter on a patient with cancer of the transverse colon who six months previous had his appendix removed in another city for the cure of chronic appendicitis, but without any abatement of symptoms.

Treatment: This depends upon the location of the neoplasm, the stage at which it is discovered, but most of all upon the nature of the accident revealing its existence.

Treatment may be divided for purposes of study into palliative and curative, depending upon the judgment of the operator. For instance, operable cancer of the rectum admits of total ablation of the bowel which has for its object radical cure, while inoperable cancer demands colostomy as a palliative measure. An inoperable case may now and then be rendered operable by the use of radium before and after operation, and a provisional colostomy becomes a valuable aid as a preliminary to a difficult case.

In other parts of the bowel excision should invariably be the ultimate aim if any operation is considered. But the excision should always be accomplished in separate stages. I take this radical position because the stage operation becomes imperative on account of the wide margin of safety that it affords to the patient. The diseased segment of the bowel should be brought out of the cavity through an incision retained thus for four or five days until perfect adhesion has formed between visceral and parietal peritoneum.

The tumor can be amputated, leaving two open ends of bowel protruding upon the surface of the abdomen resembling the muzzle of a double barreled shotgun. A long, strong jawed clamp may have its strong jaws spread apart, one jaw is introduced into the distal loop of the bowel and the other in the proximal and brought in contact and locked. Each day thereafter the jaws are pressed a little tighter and in about six days the jaws of the forceps will have bitten through the intervening bridge of tissue; the fecal current following through the gap thus provided abates the fistula that has hitherto prevailed. I grant it is much more brilliant and more sanitary to perform immediate excision and anastomosis, and the mortality rate is by no means prohibitive, but the greater difference of mortality in favor of the separate stage of operation makes its claim for adoption undeniable.

In cases where acute obstruction has been the guide to malignancy it is imperative that the operator content himself with an enterostomy above the site of obstruction to establish drainage and wait until the patient has recovered from the obstruction before attempting to deal with the neoplasm in any manner whatever. There is no place in the whole domain of surgery where fractional operation is as vigorously demanded as in the intestine.

Prognosis: That depends upon the stage in which the cancer is operated. It may be stated as a very good working rule that any cancer of the bowel that admits of comparative ease of removal that possesses reasonable mobility presents a probability of cure.

I have no experience with radium in this work, but my belief is that to be of service the abdomen should be opened and the radium buried in the cancerous mass for the required length of time.

I shall beg your indulgence while I report the details of one of my cases. I select the following cases because of the high lights under which it transpired.

During the series of clinics held in Louisville in the spring of 1921, under the auspices of the American College of Surgeons, I was called upon to operate upon Mrs. M., widow, age 50, referred by Dr. W. W. Smith. She sought relief on account of ovarian cystoma. No symptoms referable to the intestine had ever been noted. Operation disclosed two unusually large cysts springing from the right and left ovaries respectively. When the cysts were removed a neoplasm of the sigmoid, which later proved to be cancer, was felt. The question of what to do became at once pressing and paramount. At this most important juncture of the proceeding I became conscious of visitors in the room, and on looking up I perceived Drs. George W. Crile and David Barrow were at hand and interested spectators of my dilemma. These gentlemen were immediately appealed to for advice, and after considerable discussion hinging upon immediate excision and anastomosis versus fixation and subsequent amputation the latter was decided upon. The tumor was accordingly sutured outside the abdomen through the median operative incision. One week later it was amputated and the long strong jawed forceps applied as already described. Her convalescence was all that could be hoped for with the exception that the fecal fistula failed to close competely. Three months later she returned to the hospital and the abdomen was again opened and the fistula closed. At this operation a nodular cancer the size of my thumb was removed from the omentum. The patient has remained well up to the present time.

Eleven months from the first operation I promised the gentlemen who so cheerfully and wisely advised me at the time of the operation I would report the outcome of this case. I am, therefore, writing this with a view to publication in fulfillment of my promise.

SUMMARY.

(1) Persons past middle life suffering with chronic constipation, indigestion and gaseous eructations should be X-rayed and explored on the theory of incomplete intestinal obstruction.

(2) That operable cases of intestinal cancer should always be operated on in separate stages. Cancer of rectum excepted.

(3) Cancer producing complete obstruction of the bowel should not be excised until by enterostomy and drainage the patient has recovered from the effects of the obstruction.

ACUTE ABDOMEN, DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS.*

By W. Z. JACKSON, Arlington.

The first thing in diagnosis is a complete history of the case, the onset, the character, location and radiation of the pain and the location of the soreness and the patient's countenance.

Appendicitis, I believe, is the most frequent acute abdominal trouble. I will take it as a lead.

In a large majority of cases the onset is sudden with severe abdominal pain, at first diffuse, in eighteen to forty-eight hours becomes localized at McBurney's point. The pain may be colicky and sharp or dull and aching. When the onset is very sudden and severe pains, the patients will lie with their right leg drawn upon their abdomen. Nausea and vomiting are usually present in severe cases; is absent in mild cases. Fever rangs from 100 to 104; pulse ranging from 90 to 1-120 or more. Constipation is usual. and may be so obstinate as to simulate obstruction, but there may be an initial diarrhoea, especially in children. Palpation reveals localized tenderness, generally situated at McBurney's point, although in exceptional instances of an unusual location of the appendix the tender point may be found in the right groin or deep in the pelvis, or in the left iliac, umbilical, right hypochondriac and right lumbar regions. Rigidity of the right rectus (I have seen it almost as hard as a board), deep pressure on left side opposite the appendix, giving pain on right side is almost positive appendicitis. Tumors may or may not be palpable after the first twenty-four or forty-eight hours. Percussion gives uncertain results. Cardinal symptoms are acute pain, localized tenderness with or without tumor at McBurney's point, rigidity of the right rectus, fever and nausea.

Intestinal Obstruction: The existence of obstruction having been determined by the cardinal symptoms, as acute and severe abdominal pain; vomiting, at first gastric, then bilious, later fecal; early prostration and obstinate constipation.

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*Read before the Carlisle County Medical Society.

The Site of the Obstruction: Is it in the small intestines or in the colon? In general, if in small intestines, vomiting, soon becoming fecal, is an early symptom, and the tympanitic distention is not prominent and may be slight.

In general, if the obstruction is in the colon, abdominal distention is marked, fecal vomiting is much less frequent. If the obstruction is in the lower end of the ileum or in the cecum, inspection show the ladder pattern of tumidity in the lower mid-abdomen; if in the rectum or sigmoid flexure of the colon, the latter may stand out prominently, in a horseshoe shape, around the upper and lateral portions of the abdomen, and tenesmus with the passage of blood and mucus may be present.

Renal Colic: The patient is suddenly seized with pain of agonizing character, having its origin in the lumbar region, either anteriorly or posteriorly, and following along the course of th ureter. It is also felt in the testicles and down in the inner side of the thigh, and is at times referred to the glans penis. Such an attack may last only a few minutes or may last several hours, ceasing as the stone enters the bladder, inducing sweating and collapse. A chill may accompany the onset with slight elevated temperature, pulse becomes rapid and feeble. There is often strangury, some patients during an attack void large quantities of clear urine. Aching pain may persist in the region of the affected kidney for a considerable time after the stone has passed. In the case of calculus too large to be voided by the ureter, its continued presence in the pelvis of the kidney may give rise to pain.

Acute cholecystitis with or without stone. If with stones, the onset is sudden with severe pains radiating to the right shoulder blade, vomiting is not so frequent with stones. Without stones, the vomiting is more frequent, with a green, slimy thick appearance, tenderness over the gall bladder, pressure over the gall bladder causes a sick stomach. The gall bladder becomes enlarged, can be felt and is of a pear shape, and lies superficial above the umbilicus and is movable. Jaundice may or may not be present. Temperature ranging from 100 to 104. Pulse weak and fast.

Salpingitis, Ovaritis or Ectopic Gestation: An abscess of the right ovary or a right side salpingitis may in some instances simulate very closely a lowdown appendical abscess. Both cause fever and rigt-side pain and tenderness, but a history of previous or present menstural irregularities, together with a pelvic examination which reveals a fixed uterus, an indurated pelvic exudate, or an abscess cavity joined to the uterus by the ridge of the board ligament, will, as a rule, suffice for the discrimination.

Extra-uterine pregnancy affords a rather characteristic previous history of morning nausea, breast signs, menstural irregularities and attacks of colicky pain with faitness, and the physical examination shows a movable mass lateral to the uterus. Fever is absent. If rupture has occurred collapse symptoms are superadded.

Dietl's Crisis: If the ureter of a right floating kidney becomes twisted, the resulting nausea, vomiting, pain and tumor may simulate appendicitis, but the outline and mobility of the tumor, the occasional hematuria, the absence of fever, and the sudden relief of the symptoms (by spontaneous untwisting), point to the kidney as the offending organ.

Indigestion and Entero-colitis: In these nausea, vomiting and epigastric or colicky abdominal pain may closely simulate appendicitis, but there is no circumscribed tenderness, no rigidity, no tumor and while diarrhea may initiate an apppendicitis it is exceptional.

Acute Pancreatitis: The onset is sudden, with deep-seated violent, paroxysmal pain in the upper abdomen, followed by persistent vomiting, constipation and abdominal distention, perhaps limited to the epigastrium. The temperature may be subnormal at first, later there is a moderate fever, perhaps beginning with a chill.

Deep pressure over the upper abdomen may reveal circumscribed resistence, and there is well-marked tenderness between the ensiform and umbilicus. Tender points (fat necrosis) may be found scattered over the abdominal wall. Delirium, dyspnoea, cyanosis, hiccough, fatty diarrhoea and albuminuria may be present. The fat-spiting ferment may be found in the urine. Collapse rapidly supervenes.

Gastric Ulcer: More commonly the initial symptoms are those of dyspepsia, or chronic gastritis, viz., anorexia, epigastric fulness or oppression, eructations and pyrosis.

Eventually in well-marked cases symptoms more or less characteristic of ulcer supervene. There is pain, which may be dull and oppressive. More significant is an attack of sharp, boring or burning pain, excited by taking food, and occurring either immediately or from one to two hours after eating. In many cases there are two points at which the pain is most intense: anteriorly in the epigastrium, posteriorly at the level of the tenth dorsal vertebra. It is relieved if vomiting takes place. Such paroxysm of pain (gastralgia) may, however, be independent of the ingestion of food, and are often of indescribable severity. Pressure may either aggravate or relieve the pain of gastric ulcer. It is doubtful whether, as often alleged, the sooner the pain comes after eating the nearer is the ulcer to the cardia. So also with reference to the relief afforded by posture, an amelioration of the pain by lying on the face indicating that the ulcer is situated on the posterior wall of the stomach. Tenderness, which is a common symptom, but only of diagnostic value when strictly circumscribed in the epigastrium so that a finger tip almost covers it, or when a tender spot is found to the left of the eleventh or twelfth dorsal vertebrae. Haematemesis, a most significant event when a considerable quantity of unaltered blood is vomited, but occurring in only 50 per cent of the cases. It may be slight (coffee ground), but ordinarily is large, and sometimes so excessive as to be immediately fatal. Recurrent attacks at intervals of hours or days are not uncommon. After a gastric hemorrhage tarry blood is found in the stools, and may be the only evidence of the slighter bleedings. Syncope or convulsions may attend, or hemiplegia and severe anemia follow, large hemorrhages.

FUTURE OF MEDICINE AS AFFECTED BY ULTRA-SPECIALIZATION.*

By Edward H. Ochsner, B. S., F. A. C. S.,
Chicago.
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An old Swiss proverb translated says, "everything has its advantages and its disadvantages." The same idea is the basis of the great classical Essay on Compensation by Emerson. While I am going to set forth in my observations the advantages of generalization and the disadvantages of ultra-specialization, I am not unmindful of the fact that generalization has also some disadvantages and specialization many things to commend it; and even ultra-specialization sometimes has its value. In this age and day no thinking man would want to get along without specialists and yet generalization must be the foundation and specialization the ornamentation of our house of knowledge. Today it would almost seem that to some persons at least specialization is the only thing worth while. Few of us seem to realize how much we owe to the men with general information and general activities and how relatively little to the ultra-specialists. In order to stem the present craze for ultra-specialization and to help the general practitioner to come into his own I have decided to draw a few illustrations from medical history.

ILLUSTRATIONS FROM MEDICAL HISTORY.

Benjamin Franklin, the tenth child of a printer, with only about two years of schooling, became during his lifetime one of the most learned men of his age and day, and probably has to his credit more useful inventions, innovations and practical observations than any other American. Thus, for instance, though not a medical man and never having studied medicine, he nevertheless, in 1758, wrote what was one of the best, if not the best essay, on the origin and nature of a cold that had appeared in print up to within twenty or thirty years ago, and in 1780 wrote a most forceful dissertation on the cause and prevention of gout.

The law pertaining to the conservation of energy and mechanical equivalent of heat was not discovered, as one would naturally suppose, by a physicist, but by a physician, Julius Robert Meyer, who in his article on "Conservation of Energy and the Mechanical Equivalent of Heat From Physiological Computations," demonstrated the inter-relation between heat and energy. It is interesting to note in this connection that this great essay, when sent to the editor of a prominent scientific journal, promptly wandered into the waste basket, and Meyer had to go through long and arduous labor and re-experimentation and recomputation before he could complete the article again and finally succeeded in having it published. It would be interesting to know just how many of the most important discoverers have had similar experiences and had to overcome great obstacles before they finally came into their own.

The first great work in agricultural chemistry was written, not by a professor of agriculture or one who knew anything about agriculture, but by the great physiological chemist, Von Lebig.

The great foundation works of botany were not laid by a naturalist, but by an itinerant physician, Karl Linne.

The laws of heredity were not discovered by a specially trained investigator, but by the monk Mendell, who in the solitude of his cloister carefully observed and painstakingly recorded the facts that laid the basis for this great science.

Ephraim McDowell, an unknown country practitioner residing in the small frontier village of Danville, Kentucky, in 1809, practically without any assistance performed the first operation for ovarian tumor, on a lady who was then 47 years of age, who recovered from the operation, lived in good health to the time of her death at 78 and outlived her benefactor by eleven years.

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*An address presented before the Evanston Branch of the Chicago Medical Society, 1921. Reprint from the Ohio State Medical Journal.

Edward Jenner, through whose discovery of vaccination probably more lives were saved than by any other discovery, was one of the most versatile of men. Besides being educated as a physician and being engaged in the general practice of medicine for many years, he was a naturalist of great repute, having arranged and prepared the zoological specimens which Sir Joseph Banks had brought back from Captain Cook's first voyage in 1771. This he had done so well that he was offered the post of naturalist in the second expedition. In addition, he wrote a number of monographs on biological and geological subjects which were presented before the Royal Society. He was a fair singer and musician and a writer of verse.

To his great fund of knowledge and large general experience can unquestionably be attributed in large measure the acuteness of his powers of observation which made it possible for him to make a discovery which has proved of such inestimable value to mankind. The ravages of smallpox before Jenner's discovery, we can today scarcely comprehend, for we are creditably informed that before the general employments of vaccination, one-tenth of all deaths were due to this malady, to say nothing of the loss of sight and hearing and disfigurement of its victims.

Bacteriology, the very foundation of modern medicine, was given its first impetus, not by the work of a physician, but by the work of the chemist, Pasteur. It was the work of Pasteur that made modern surgery possible.

Then again while the pathologists and climatologists of their day were squabbling about the cause of epidemics and trying to explain them on some obscure unintelligible conditions of the air and sub-soil, the great Koch, an unknown country practitioner in an obscure village of Prussia, discovered the bacillus of tuberculosis and the spirillum of cholera and laid the foundations for modern bacteriology. It is interesting in this connection to recall the fact that most of the pathologists of his day ridiculed Koch when he first made public his discoveries—one of the most prominent ones, Pettnikoffer, going to the extreme of offering to drink a test tube full of Koch's cholera spirillum culture, saying that he had for many years observed the same spirillum in the water of every mud puddle examined. He actually drank the contents of one of Koch's test tubes which nearly killed him and incidentatlly convinced both himself and the rest of the ultra-scientific pathologists that Koch was right.

The first man to publicly demonstrate the value of ether in a surgical operation was William T. G. Morton, not primarily a medical man, but a dentist. Lawrence H. Prinz, the man who worked out the modern open or drop method of giving ether in place of the old closed-cone, choking method was not an anesthetist by profession, but a general practitioner, now superintendent and managing officer of the State School for Orphans at Sparta, Wisconsin.

Lewis Albert Sayre, who raised orthopedic surgery to the dignity of a specialty, was a general surgeon, and may well be called the Father of Orthopedic Surgery in America, and, in fact, also the Father of Orthopedic Surgery in continental Europe. Before his time the treatment of deformities was very largely in the hands of bracemakers and quacks, and it was through Sayre's influence that not only American orthopedics, but the orthopedics of continental Europe were brought into their own. Hoffa, one of the first and greatest orthopedic surgeons of continental Europe, himself primarily trained as a general surgeon, came to New York and learned Sayre's methods and disseminated the knowledge thus acquired in his own country. Hoffa and Lorenz, the latter also trained as a general surgeon, first developed the open and later the bloodless treatment of congenital dislocations of the hip.

In this connection it is very interesting to observe that after Lorenz published his bloodless functional weight bearing method of treating congenital dislocations of the hip, the Boston Medical Society appointed a committee of three orthopedists to investigate his claims and after a year of study and theoretical consideration they came out with a report which in substance said that the bloodless reduction of congenital dislocation of the hip was impossible, and when I read my first paper on congenital dislocation of the hip in Chicago, in which I showed the pelvis of a patient, who died several years after complete functional and almost perfect anatomical recovery, the three professors of orthopedic surgery, who discussed my paper, stated that to maintain the limbs at 90 degrees ventral flexion and 90 degrees abduction was an impossibility. I then showed a picture of the patient in this position to refute their assertions to their great confusion and consternation.

The cause and rational cure of bunions, one of the most painful and displeasing minor afflictions, were not discovered by some great orthopedic surgeon, but by the practically unknown small-town general practitioner, Herbert E. Robinson, of Kenosha, Wis.

The rational ambulatory splint, the pneumatic splint, was invented by the late Dr. Hughes, a family physician of Sheboygan, Wis., and perfected and introduced by the layman, Mr. Seaman.

FADS AND FOLLIES OF MEDICAL PRACTICE.

Many additional illustrations could be cited; however, from the above we have a right to conclude that the men with general information and with a broad outlook upon life have discovered most of the worth while things that have so far been discovered and that the ultra-specialists have not made their fair share of the contributions along these lines. But this is not all. In addition, the latter have by their opposition, as above cited, sometimes delayed progress, have been responsible for most of the fads and follies in medicine and have sometimes discredited useful procedures by pushing them to the extreme and making them ridiculous. In reference to the last two accusations we need but recall the universal tampon of thirty years ago. Few women escaped from a gynecological clinic or even from the office of a gynecologist in those days without a tampon of some kind. Later came the equally almost universal curettage; then the removal of ovaries with imaginary cysts. And later the thoroughly pernicious permanent ventral suspension of the uterus and also the commonly performed nephropexy, then the routine catheterization of the ureters. About twenty-five years ago a prominent professor of obstetrics in Chicago advocated the routine curettage of every parturient woman directly after delivery and more recently an equally prominent professor of obstetrics made the statement at a medical meeting that every labor should be considered pathological.

We must not forget the gyromele of some twenty-five years ago, nor the Bier vacuum pump craze, and the Dakin-Carel solution fad. In more recent years we have seen the fad of bone-planting all simple fractures, the removal of the large intestines for constipation, the routine suturing of the pillars after tonsillectomy, the curettage of teeth sockets and even the chiselling away of the alveolar processes after extraction.

Some of the above procedures have real merit and should occasionally be employed even to this day, but most of them were so overdone by over-zealous specialists that they are thoroughly discredited. It is such fadism that only too often discredits medicine in the minds of the thinking public.

NEEDLES IN HAYSTACKS.

While the microscope and the test tube have their proper places and important function, let those who worship at the shrine of these remember that they would have considerable difficulty in finding either a mouse or an elephant with a microscope, and that after all all test tube conclusions are based on tests of dead material and must be taken with a grain of salt. And let them remember, too, that after all the five well trained, unaided senses are usually indispensable in reaching a correct diagnosis. If you want to find a needle in a haystack, be sure to employ an ultra-specialist, with his fine instrument, but be equally sure to indicate to him the particular haystack in which the needle is concealed. And even then sometimes he will not find the needle as the following case will illustrate. Only recently I had a patient come to me with a large hydronephrotic kidney, containing at least a quart of fluid and twenty good sized kidney stones, who had been examined a short time previously by one of our most prominent neurologists, who over looked the mass in the abdomen which was later discovered by a general practitioner and sent by him to an X-ray specialist who failed to find the kidney stones. Later referred by this same general-practitioner to me when I was able by a simple examination with my fingers to outline the tumor, and to find the stones which the roentgenologist had overlooked after I had removed the kidney and opened the sac.

I have related the above history in order to emphasize the limitations of the ultra-specialists and his diagnostic measures. Let us ever remember that the percentage of error, in conclusions based upon a careful examination of a patient by the unaided senses, is much smaller than the percentage of error in conclusions based upon almost any one of the more modern ultra-scientific diagnostic methods, and that the best results can only be obtained if the ultra-scientific methods are only employed as aids to the simpler methods; hence, let us insist that the ultra-specialist and the laboratory worker, and particularly the research worker, must always be subservient to the clinician with wide clinical experience, not only that they may be of the greatest possible service to the science and art of medicine and thus to humanity, but in order to prevent them from doing incalculable mischief.

DIRE RESULTS OF ULTRA-SPECIALIZATION.

Another reason for bringing up this subject at this time is that we are now almost in a frenzy of ultra-specialization and it is about time for some one to point out the dangers and to call a halt. Our medical colleges have all but ceased to train general practitioners and instead are practically training only specialists and research workers. Many of the professors in our medical schools have contempt for the general practitioner with the result that a number of evils are rapidly developing.

First, the public in general, and particularly the public in the rural districts, are in real danger of soon not getting the kind of medical service for their ordinary ills which they ought to have because the medical colleges are not turning out a sufficient number of general practitioners. After all, fully ninety per cent of human ailments are best dealt with by the properly trained general practitioner. *Second*, that the public in our cities are being over-specialized upon and are sometimes treated for conditions that exist only in the fertile brains of specialists. And *finally*, the specialists are being so over-crowded particularly in the large cities, that many of the younger men will find it impossible to make a decent living in the specialty for which they have spent years in preparation and when they are forced out of the specialty they will usually find themselves poorly prepared for the general practice of medicine; yes, and when one of these young men, after spending eight or ten years or even longer in preparing himself for his specialty, utterly fails, as some of them actually do even now, it not only is a great economic loss to the state and nation, but a real human tragedy.

THE REFORMATION.

We have now considered at some length one of the chief affections that modern medicine is suffering from. Let us now briefly consider the causes which have led to this state of affairs, then prescribe a remedy and finally offer a prognosis.

Causes—The chief causes for present conditions are: (A). The unprecedented progress in the science and art of medicine in a relatively short period of time rather upsetting all precedents, and the lack of complete adjustment to the new conditions. (B) Previously inadequate supply, hence real need for specialists. (C) Greater popularity and better remuneration for specialists with the natural consequence that the pendulum has swung too far in the way of specialization.

Remedy—The remedy I would consider under several headings: *First*, a thorough understanding of the real situation. *Second*, a fundamental change in medical education which would consist in a deliberate attempt to educate medical students to become proficient as general practitioners of medicine. This would require some very profound changes in our medical schools. The four-year course in the medical college with the additional interne year should be made intensely practical. This can only be done if a much larger per cent., or better still if all of the teachers in the fundamental branches, are men who have had extensive personal experience in the practice of medicine. At the present time some of our medical schools have no men with practical experience teaching the fundamental branches with the result that the student learns a lot of very interesting scientific facts which have little or no bearing upon the actual practice of medicine and he fails to learn many practical things that he sorely needs when he gets into the active practice of his profession.

These scientific non-practical lecturers are very apt to drone out their lectures in a monotone, not emphasizing the important points beyond the others for the simple reason that they do not know which facts are really essential and important. Then when the student gets into the applied clinical branches, he is utterly bewildered and lost. Later he comes under the tutelage of men, most of whom have specialized so long and to such a degree that they are out of touch with the problems of general medicine. This can only be corrected if all of the teachers in the applied clinical branches possess broad general training and experience before they take up a specialty and that they then be requested to bring out the great fundamentals of their specialty as applied to the general practice of medicine without going into hair-splitting details. The greatest medical teacher is not necessarily he who knows the greatest number of scientific facts, but he who can impart to his students the greatest amount of useful information in the least possible time.

In addition, our textbooks should be rewritten so as to differentiate between the essentials and the non-essentials and the medical teachers and the medical examiners of state boards should come to some agreement as to what candidates for graduation and licensure shall be examined upon. Some years ago it would have been almost impossible for any recent graduate to secure a license to practice in any state in the union without a most thorough knowledge of Erlich's side chain theory and yet I would like to know just what knowledge of this theory has to do with the successful practice of general medicine. Today a medical student has to learn innumerable useless facts in materia medica at the expense of a great deal of time and energy, time and energy which had better be spent on a thorough study of a much smaller number of important drugs. And so on in practically all of the branches which are being taught in our medical schools.

And *finally*, we should have at least one man in each medical school with extensive experience, both in life in general and the practice of medicine in all its branches, who can give to the senior students a thorough course in medical economics so that the student, when he starts out to make a living, shall know how to handle this important phase of the problem.

Of what value is all his scientific knowledge if he does not know how to handle the problems that arise every day in the practice of a busy practitioner? If senior students are given such a course, we shall not again experience the humiliating spectacle of so many of our medical men falling into the net of compulsory health insurance. state medicine and health center quacks and propagandists or other visionary uplifters who shall appear on the medical horizon from time to time in the future.

Prognosis—Now as to prognosis: I am neither a prophet nor the son of a prophet, but I will make a guess that most of the young men, who are now so intensely preparing themselves for the various specialties, are going to find hard sledding ahead and even some of the specialists, who are already engaged in the practice of their specialty, are going to come across some bare spots, particularly if we are to have a long period of financial depression, for after all a very considerable per cent of the service rendered by the specialist comes under the heading of luxuries, service which the patient can do without and which he will do without during periods of financial stress. Medically, we are rapidly approaching the condition of the European countries in this respect, *namely*, that there are few if any new openings left for specialists. Nearly every town of 50,000 inhabitans and over has its full quota of specialists and future specialists will practically have to wait for openings, for some one to die or retire. However, let us get what comfort we can from the following incident:

"An optimist fell ten stories;
As he passed each window-bar,
He shouted to his friends inside,
'All's well. So far!' "

The report continues: "We caught him on the thirteenth bounce, He was whistling, 'It might have been worse.' " Yes, things might be worse and have been worse, if we would believe Herodotus, who wrote the following about Egypt about 450 years B. C.: "The art of medicine among us is distributed thus: Each physician is a physician of one disease and of no more. The whole country is full of physicians."

May we prevent that this can ever be truly said of our own country and may we soon see the day when every medical student will receive the necessary practical training which will put him in position to become a good general practitioner and then the time will soon be here when the general practitioner will again come into the esteem and respect which is due to the tried, true and trusted family physician.

Determination of Hippuric Acid in Urine.—By using 15 gm. solid sodium hydroxid in hydrolyzing the hippuric acid of 100 c. c. of urine at the boiling point for thirty minutes and subsequently acidifying, extracting and titrating, results were obtained by Kingsbury and Swanson that were, in one experiment, 22 per cent higher than the known titration value for this specimen of urine. It was also found that values from 10 to 33 per cent higher than those obtained by the Folin-Flanders method resulted when urine was boiled with an equal volume of a mixture of concentrated nitric and sulphuric acids for thirty minutes in a process that gave 100 per cent recovery when applied to solutions of pure hippuric acid. Oxidation of the urine with alkaline potassium permanganate after the plan of Hryntschak was tried and yielded promising results.

Roentgenotherapy in Polycythemia.—In a former communication, Bottner reported the case of a patient with pronounced polycythemia with tumor of the spleen and typical changes of the skin and mucous membranes (hemoglobin, 145 per cent; erythrocytes, 9,800,000), who was completely cured by two series of roentgen-ray treatments. An interval of a year and a half has elapsed since the last irridiation, and there has been no relapse. However, in two more recent cases of polycythemia in which he employed similar methods, the results have not been so good. Only partial relief of the patients has so far been effected. He concludse, therefore, that while roentenotherapy effects a cure in some cases, in others again all that can be accomplished is temporary, though effective, symptomatic relief.

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ANNUAL MEETING, PADUCAH, 1922.

COUNTY SOCIETY REPORTS

Daviess—At its rgular meeting on December 21, the Daviess County Medical Society elected officers as follows: P. D. Gillim, President; A. J. Gordon, Vice-President; J. J. Rodman, Secretry-Treasurer; W. L. Tyler, delegate to State meeting; A. McKenney, Censor.

J. J. RODMAN, Secretary.

Bell—At the regular meeting in December the Bell County Medical Society elected O. P. Nuckols, President; Jacob Schultz, Vice-Preisdent, and J. G. Foley, Secretary. This society is going to have close to a 100% membership this year.

J. G. FOLEY, Secretary.

Allen—The Allen Conty Medical Society convened at H. M. Meredith's office, December 31, 1921. E. A. Whitlow was re-elected President and J. E. Pace Secretary. Those preesnt were: E. A. Whitlow, H. M. Meredith, C. A. Calvert, W. E. Willoughby, G. R. Keen, P. G. Graves, Latie Graves, R. W. Cook, J. E. Pace.

J. E. PACE, Secretary.

Russell—The thirty-third annual meeting of the Russell County Medical Society was held at the Holt Hotel, Jamestown, January 2, 1922, at 10 a. m. After the regular business was dispensed with payment of dues. All paid for 1922. Some of the members were not present, but have always sent in their dues in due time to the secretary. The following were elected officers: H. S. Gehrken, President; J. B. Tartar, Vice-President; J. B. Scholl, Secretary-Treasurer; L. D. Hammond, J. S. Rowr, and F. D. Flanagan, Censors.

Several resolutions were offered and passed on favorable. One was against some of the Volstead law and the narcotic laws. All present made talks about the good and bad things. Also indorsed the suit against Russell County to compel or require the county to pay reasonable salary to its health officer.

J. B. SCHOLL, Secretary.

Lyon—At a meeting of the Lyon County Medical Society the following officers were re-elected for the ensuing year: J. H. Hussey, President; T. L. Phillips, Vice-President; W. G. Kingsolving, Secreary and Treasurer; H. H. Woodson, delegate to the State Society, and C. H. Linn, alternate. This meeting was on the 28th of December, 1912

W. G. KIGNSOLVING, Secretary.

Franklin—At a called meeting of the Franklin County Medical Society, held in the office of E. C. Roemele on Tuesday, January 24, at 7 p.

m., the following officers were elected: G. A. Budd, President; W. H. Evans, Vice-President; F. W. Mastin, Secretary-Treasurer; E. C. Roemele, delegate; C. T. Coleman, alternate. The Censors to be appointed by the President at the February meeting.

Dr. Pindar, Assistant Superintendent F. M. I., made application for membership in the society and was unanimously elected.

Adjourned to meet the second Tuesday in February. F. W. MARTIN, Secretary.

Bourbon—The Bourbon County Medical Society met in Paris on Thursday, January 19, 1922, with eleven members present. G. Y. Daugherty was appointed alternate delegate to the State meeting.

A communication from the Medical Advisory Committee regarding a change in policy of the A. M. A. was tabled.

A motion that the Representative and Senator from this district be notified that the society is in favor of the State Board of Health taking control of the nurses was passed.

J. T. Hart, Clintville, read a paper on "Blood Chemistry in Relation to Diagnosis and Treatment," which was liberally discussed.

MILTON J. STERN, Secretary.

Fleming—Regular meeting January 11, 1922. Present: F. Ribelin, presiding; A. S. Robertson, C. R. and C. L. Carr and Charles W. Aitkin. Minutes of December, 1921, meeting approved. Secretary reported dues all paid except four members. The subject of "Puerperal Eclampsia" was discussed by all the members present, as to their personal experiences with the dreaded affection. Reference was made to the fact that we are not apparently much nearer a solution of the cause of these convvulsions than we were over forty years ago. The most satisfactory treatments of the members present was veratrum, morphine and pilocarpine, with alimentary and kidney elimnation.

CHAS. W. AITKIN, Secretary.

Cumberland—At a regular meeting of the Cumberland County Medical Society held today in the offices of W. C. and Oscar Keen, the following named officers were elected for the year 1922: President, J. E. Bow; Vice-President, J. R. Webb, Secretary-Treasurer, W. C. Keen, with H. G. Davis, J. G. Talbot and J. H. Keen, with Board of Censors. Oscar Keen was elected delegate with W. C. Keen as alternate.

W. C. KEEN, Secretary.

McCreary—A special meting of the McCreary County Medical Society was called at Stearns on January 21, 1922, for the purpose of electing officers for the year 1922, on which date the following officers were elected: C. E. Carr, President; F. E. Peck, Vice-President; R. M. Smith, Secretary-Treasurer; A. Bradley, S. S. Foster, Censors.

There being no further business it was resolved to attend more regularly during the year of 1922, and the society was adjourned until the regular March meeting.

R. M. SMITH, Secretary.

Suspension Traction Treatment of Fractures.—It is Hartwell's belief that with proper attention practically every fracture through the middle third of a long bone can be treated successfully by the traction suspension method, and that the results will be more promptly obtained and better functionally than by other methods. However, it is a method that can be applied only after considerable experience, and the attention to details that many surgeons are unwilling to give.

Ocular Manifestations in Diabetes Insipidus.—Marin Amat relates that under pituitary treatment in a case of diabetes insipidus described, in a man of 29, the symptoms indicating pressure on the optic chiasm displayed marked improvement. These symptoms had always been mitigated by reclining and aggravated by standing. The urine output dropper from 8 to 4 liters, but the atrophy of the optic nerves persisted unmodified. Te enumerates a long list of functional, somatic and organic symptoms liable to be observed with pituitary lesions.

Production of Immunity.—Experiments are described by Johnson which demonstrate the possibility of securing the immunity of rabbits against an organism of high virulence by immunization with a live related organism avirulent for the species. In this respect, Tenbroeck's observations are confirmed, and it is further shown that killed vaccines prepared either from the homologous or from a related organism fail to give solid immunity against the live virulent strain.

Influence of diet on the Growth and the Development of Premature Children.—Neubauer recalls that infants prematurely born present marked differences from the healthy infant born at term. He examined 100 premature children with an average weight of 1,500 gm. He noted their physical development and height in earlier years and compared it with their development in later years. The theory that premature infants need more salt was confirmed. Physical development—height and weight—may be materially improved by the addition of mineral salts of milk. This may be accomplished by adding a buttermilk preparation to human milk.

BOOK REVIEW

Lessons on Tuberculosis and Consumption—For the household, showing how to prevent tuberculosis, how to recognize its first symptoms, how to win back health. By Charles E. Atbinson, M. D., recently Medical Director of the Seymour Sanatorium for Diseases of the Throat and Lungs, Banning, California; formerly member of the resident medical staff at the Pottenger Sanatorium for Diseases of the Throat and Lungs, Monrovia, Cal.; previously attending physician and instructor in the Medical Clinic of the Graves Memorial Dispenary, Los Angeles Medical Department of the University of California; member of the National Tuberculosis Association; fellow of the American Medical Association, etc. Illustrated.

Funk & Wagnalls Company, New York and London, 1922. Price, $2.50.

Into this stimulating and cheering volume is poured a rich treasure-trove of health-restoring, health-guarding instruction. Written in plain, non-technical language which all will readily understand, it is destined to carry its messages of hope to those multitudes, optimistic or discouraged, who seek to ward off or recover from tuberculosis and consumption.

To the sufferer it will prove the most helpful, effectual and encouraging of guides, indicating with orderly, definite description each step forward on his road to joyous recovery. It points out to him the dangerous pitfalls into which so many hapless sufferers have fallen and shows him how he may avoid them. It will supply a long-felt but hitherto unsupplied demand for positive, authoritative, and detailed information on every phase of his illness, with equally definite instructions on what to do and the reasons for doing so.

To the seeker of prevention (and that means nearly every one) these lessons will give crystal clear instructions for coping with every situation. When it is realized that tuberculosis averages one victim in each family (roughly 90%, or 9 out of every 10 persons contract it in some degree during life), and that numberless fatal cases could have been cured had they been recognized in time by the sufferers themselves or by parents or guardians in the cases of affected children, the priceless value of these lessons will be better realized.

Briefly, this volume should be in every home and given the place of confidence and trust (we might say reverence) which it so richly deserves. It is a work of highest purpose; authoritative, simply expressed, cheer-bringing, remarkably complete in its scope, and with unmeasured possibilities for aiding both the sufferer and the seeker of prevention to successfully combat tuberculosis and consumption.

The Practical Medicine Series—Comprising eight volumes on the Year's Progress in Medicine and Surgery, under the general editorial charge of Charles L. Mix, A. M., M. D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume V, Gynecology. Edited by Emilius C. Dudley, A. M., M. D., LL. D., Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, Chicago. Obstetrics, edited by Joseph B. De Lee, A. M., M. D.. Professor of Obstetrics, Northwestern University Medical School; Attending Obstetrician, Chicago Lying-in and Mercy Hospitals; Consulting Obstetrician, Provident and Evanston Hospitals, Series 1921. Chicago, The Year Book Publishers, 304 South Dearborn Street, Price $1.50.

The present volume is one of a series of eight, issued at monthly intervals. The table of contents comprises chapters on gynecology, pregnancy, labor, the puerperium, care of the new born and miscellaneous obstetrics.

Submucous Resection of the Nasal Septum—by W. Meddaugh Dunning, M. D., Consulting Otologist, Fordham Hospital, N. Y. C.; Consulting Otologist, Manhattan State Hospital, N. Y.; Consulting Laryngologist, Ossining City Hospital, Ossining, N. Y.; Consulting Laryngologist, The Alexander Linn Hospital, Sussex, N. J.; Assistant Surgeon, Manhattan Eye and Ear Hospital, New York; Surgeon, Bronx Eye and Ear Infirmary, N. Y.

A most complete and comprehensive book describing the very latest technique in Submucous Resection of the Nasal Septum.

Dr. Dunning's extensive experience in submucous work especially fits him to write an instructive book upon this subject.

Its contents thoroughly covers the Nose, Breathing and Smelling, Common Septal Deviations, Surgical Procedure in Submucous Resection of the Nasal Septum, Special Surgical Procedure, Typical Case Histories and their significance, the Saddle-Back Nose. etc.

The minutest technique of the operation and text is clearly visualized by twenty-five especially prepared drawings. It is the only recent book upon this subject.

While text books upon nose and throat work devote some chapters to submucous resection of the nasal septum, their authors cannot devote a sufficient amount of space to comprehensively describe and illustrate the complete technique of the operation and after-treatment.

Over 100 pages of text, illustrated by 25 pages of drawings, printed upon heavy coated book paper and substantially bound in cloth. Price $1.50 postpaid. Surgery Publishing Company, 15 East 26th Street, New York, N. Y.

Episcopal Hospital Reports, Volume V—A collection of papers based on work done in the Episcopal Hospital from 1916 to 1920, comprising 506 pages.

Cosmetic, Nostrums and Allied Preparations—Prepared and issued by the Propaganda Department of the Journal of the American Medical Association, 535 N. Dearborn Street, Chicago, Illinois. Price 15 cents.

This pamphlet is issued by the propaganda department of the A. M. A. as part of its work in giving the public the facts regarding the nostrum evil and quackery.

Preparations for the skin and hair are discussed and one part is devoted to deodorants, depilatories, etc.

NEWS ITEMS AND COMMENTS

The first examination of the National Board, under the new plan, in Parts I and II will be held as follows:

Part I, February 15, 16 and 17 (1922) inclusive.

Part II, February 20 and 21 (1922) inclusive.

Applications for examination should be received no later than January 15, 1922. Application blanks and Circulars of Information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

Members of the Physicians and Surgeons Adjusting Association of Kansas City, Mo., can hereafter purchose their supplies and equipment through the association, at money saving prices, according to an announcement just received. The plan is not new, having been tried successfully by other organizations, notably farmers and druggists. The saving averages 30%, according to the announcement. Those interested should write the association, address Railway Exchange Building, Kansas Cilty, Mo.

Dr. J. Louise Miller, formerly of Henderson, Ky., is now located at 200 East Broadway, Louisville.

No Indol Production by Staphylococci.—In order to test the ability of staphylococci to produce indol, 115 strains of staphylococcus, isolated from pathologic lesions in man, from air, dust, human feces and putrid beef, were cultivated by Jones and Zingher in mediums containing proteins, peptone and free tryptophane. Numerous tests for indol with several reagents, particularly with Ehrlich's paradimethylaminobenzaldehyde solution, were made with the cultures at different intervals from forty-eight hours to three weeks. In no instance was a positive test for indol obtained. Although these results present only negative evidence, they are thought to be sufficient to warrant the conclusion that indol is not a product of the metabolism of staphylococcus.

Localization of Typhoid Infection in the Heart.—Minet and Legrand summarize from the records 4 cases and report 2 from their own experience in all of which the typhoid infection had settled predominantly in the heart, sparing the bowels. In 2 of the cases the myocardium bore the brunt of the attack without involvement of the valves, and the patients recovered. Necropsy in 3 other cases confirmed the clinical diagnosis of typhoid endocarditis, and acute pulmonary stenosis was evident in the other patients who survived. The endocarditis was of the simple acute form or acute malignant or slow malignant in the various cases. In one case a streptococcus was found associated with the typhoid bacilli.

Relation Between the Pituitary and Diabetes Insipidus.—In Villa's case, severe diarrhea from chronic enteritis accompanied the diabetes insipidus, and the man of 26 died from debility. The abnormal condition of the pituitary explained the diabetes insipidus. Chronic enteritis with diarrhea is not uncommon with diabetes insipidus. He cites several cases of this association, and is inclined to accept a causal connection.

Multiple Serositis.—Ascites and hydrothorax of considerable degree were present in Ewing's case and no other symptom than those caused by these fluid accumulations were negative except on one occasion when malignant tertian rings and crescents were present in blood films. The patient admitted having had malaria two years previously. He had otherwise always been well.

Care of the Tuberculous.—Lindhagen asks how the care of the tuberculous in institutions can be most suitably organized. Sweden now has seventy-seven institutions for the adult tuberculous, with a total of 5,382 beds. Omitting private institutions for the well to do, there are seventy-three with 5,069 beds, and 70 per cent of these are in the larger sanitoriums. In Norway the tendency has been the reverse, the majority of the beds being scattered in the smaller sanatoriums. He does not approve of this tendency, saying that the present financial depression is a transient phenomenon, and it is not wise to put up with makeshifts which will not serve later after this temporary period of stringency is past.

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BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

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EDITORIAL

AS TO OUR LEGISLATION.

We had hoped, in this issue of the JOURNAL to devote full space to the very satisfactory, even generous, dealing accorded to the medical profession and the State Board of Health by the General Assembly, but, as this honorable body did not finally adjourn until about 3 o'clock A. M. of the day we were due to go to press, it was found impossible to do so. Suffice it to say in the few hurried words which can be written, except for the codified medical practice law, which was not pressed for passage because of the confusion in our own ranks growing out of misconceptions of some of its provisions and purposes, everything the organized profession was back of, including every dollar asked for to carry on all of our health and medical activities, were passed with little opposition when they came to a vote, sensational newspaper talk, inspired by, or getting their information from well paid discredited politicians, calling themselves lobbyists, to the contrary notwithstanding; and, what will be read with equal satisfaction, is the fact that in spite of the slanderous circular matter, miscalled literature, piled on the desks of legislators and mailed out by the thousands to officials, editors, clergymen, club-women, and even to physicians, about things over and over shown to be false by our highest courts, they really turned against this crowd, became helpful. Information about this and other interesting things will be given in the May JOURNAL.

ALL-TIME COUNTY HEALTH DEPARTMENTS.

It is pleasing to note the progress being made in the counties supporting all-time health departments, and since this work has had two years of demonstration in eight counties with almost universal approval from the public, it is felt now that there is good reason to look forward to other counties establishing such departments and furnishing the means for bringing the ideals of good health and better living conditions direct to the people themselves. The State Board of Health has received numerous letters from county officials and public-spirited citizens who have watched the activities of these health departments, giving their hearty indorsement and urging their continuance permanently. County school superintendents and teachers in particular have been enthusiastic in their appraisal of the value of a well-organized all-time health department. The health officer and nurses have carried on zealously, developing the various health activities consistently and with the view of affording the largest measure of protection against preventable diseases and health nuisances possible. The crusade against venereal diseases, the quarantining and follow-up work to control all contagious and infectious disease, the work of school inspection and examination of school children with subsequent efforts in and through the profession to secure correction of defects, sanitary surveys and elimination of nuisances by securing the substitution of Kentucky sanitary privies fo the old surface privies or open vaults and general community clean-up campaigns; inspection of food handling plants of all kinds, these and other just as important activities are working out in a way entirely satisfactory to all the agencies committed.

The State Examiner and Inspector commenting on the All-Time County Health Departments, in his report in July, 1921, said: "The State Board of Health realizes that however effectually it functions from Louisville, it cannot reach the citizenship of its counties except through local organizations," and then calls attention to the fact that the Model County Health Departments are "strategically scattered through the state so as to educate all the people, especially fiscal courts and other administratives as to the value of intensive health work. Quoting further from this report, "The All-Time Health Departments in these counties are cordially commended, both for their efficiency and their economical management by their officials, and people of other counties are advised to study them with a view to their universal adoption throughout the state."

THE LAW ENFORCEMENT BULLETIN.

The State Board of Health is this week sending to each County Medical Society, County Board of Health, County Medical Referee and each Commonwealth and County Attorney in the state its Law Enforcement Bulletin recently received from the Public Printer, with the request that meetings of the county societies be called in every county to carry out the suggested plan of organization outlined for a systematic and uniform enforcement of the medical and drug enforcement laws. Copies of the Bulletin will gladly be sent to any physician or list of physicians desiring it.

COUNTY MEMBERSHIP—WHO SHALL DECIDE.

The Kansas Medical Journal has this timely editorial which is cordially commended to every county society in the state:

"Something more may be said in regard to the matter of membership. While every county society should be jealous of its privilege to determine the fitness of candidates for membership, this privilege should be exercised with a spirit of charity and forgiveness. Personal animosities should be forgotten in an association which is primarily for scientific study. Forgetfulness is sometimes a blessing to oneself as well as his friends. One is sometimes more tenacious of the memory of an insult to his dignity than of the memory of many compliments and benefits coming from the same source.

We cannot justly deny to anyone an opportunity to make amends for any injury committed nor can we more justly refuse him the privilege of reinstatement in the good graces of his fellows when full reparation for his faults has been made.

"Our organization is not a fraternity, but a scientific society with a few fraternal features which also embody the principles of mutual protection. In order that the greatest benefits possible may be derived by its members it is important that every physician who is properly qualified should be admitted. Section 5, Chapter X, of the By-Laws reads as follows: 'Each county society shall judge of the qualifications of its own members, but as such societies are the only portals to this society and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice, nor lend his support to any exclusive system of medicine, shall be eligible to membership.

"It is well to note that the qualifications for membership are not very difficult and it is well to note that nothing is mentioned concerning the ethics of an applicant. The Principles of Ethics, while they should govern the conduct of every physician, are only made applicable to members of the society. It was the policy adopted in the reorganization plans of the association that this matter of the previous ethical conduct of an applicant for membership should be ignored. It was argued, and correctly so, that one inclined to ignore the principles of ethics would be more amenable in the society than out of it.

"Some of us very distinctly remember how we were compelled to admit to membership some men who had been expelled from the old organization and most of us have been convinced of the wisdom of the policy which was adopted.

"As was suggested in a previous article on this subject, it would be better to keep a good and worthy man out of a society than to cause its demoralization by taking him in. However, we are not ready to admit that such a dilemma exists or is likely to exist.

"One is sometimes heard to say that if a certain applicant is admitted to his society he will withdraw his membership. At the same time it is not unlikely that the man belongs to the same lodge and the same church. But suppose such is not the case and this man who promises that he will leave his society on such provocation is admitted, for instance, to the 'Odd Fellows,' or 'Masons' and after being initiated learns that this other man is already a member of that body, we wonder if he would withdraw. Suppose by some circumstance he should 'get religion' and join a church and after being admitted to the fold learn that his unfriend was already a member. We wonder if he would sever his connection with the church on that account. We wonder, if this unfriend were already a member of the county society and he were not, if he would apply for membership. We confess an inability to comprehend the mental, moral or physical attitude of one who would refuse to affiliate with a church, a lodge or a medical society because of one man that he did not like or that did not come up to his standard of a gentleman or a physician.

"In fraternal societies it is customary for one vote to reject an applicant for membership, but it is surprising how rarely the privilege of black-balling a candidate is exercised. In our medical societies it requires several votes to reject an applicant, and it is surprising how frequently this has happened. We do not doubt that members voting against the admission of an applicant believe they are voting for the best interests of the society, but sometimes they may confuse their own interests, their own convenience, or their own peace of mind with the interests of the society. It is important that the interests of the county society should not be considered alone, for it is only a small and insignificant part of a great national organization whose interests are the interests of the whole medical profession. Our state society will only be able to realize its ultimate purpose when every physician in the state that is qualified shall be enrolled as a member.

"It is important that no applicant should be refused admission except for good and sufficient reasons—charges properly preferred, substantiated by definite facts with evidence to support them, and further investigated and evaluated by a court of inquiry.

"The importance of this view of the matter will be appreciated by everyone who has carefully considered the present situation in medicine and the difficulties that threaten us. Perfect organization and thorough co-operation offer the only protection to our high standards of medical education and to future independence in the practice of medicine. In sickness insurance and state medicine lies the alternative."

THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The arrangements of the St. Louis profession for the meeting places for the session of the A. M. A., which is to be held in their city May 22-26 next, are singularly fortunate and convenient. Never has the association been so well favored in this respect. The district in which the meeting is to take place is at the west edge of the business section of the city, easily accessible from all directions by street car or otherwise, and not more than fifteen minutes street car ride from the most distant hotel. The grouping of the meeting places is so compact that should one walk from the registration building (Moolah Temple) to the farthest hall it can be done in ten minutes or less; from section to section is a matter of from one to five minutes. The convenience of the location and arrangements of the different halls is more outstanding than in any other city in which the association has met, and a decided improvement over the accommodations which were had at the meeting in St. Louis, 1910.

The registration office, postoffice and commercial exhibit is to be in the Moolah Temple (Shrine), a beautiful and commodious building on Lindell Boulevard, two blocks west of Grand Avenue. At the other extremity of the group is the Odean, the home of the St. Louis Symphony Orchestra, with a main hall which seats better than 2,000, and several lesser halls. The main hall will be used for the opening session. Its acoustics are particularly good and suited to our purpose. The sections on Practice of Medicine and of Diseases of Children meet here. In the assembly hall of the same building the sections on Pharmacology and Therapeutics, and on Pathology and Physiology will meet. (It will be noted that there has been an aim to foregather closely allied sections.) The Sheldon Memorial, a very beautiful new hall on Washington Avenue, one-half block west of Grand Avenue, which most admirably meets all requirements, will be the meeting place of the section on Ophthalmology and Laryngology, Otology and Rhinology. The section on Surgery, General and Abdominal on Obstetrics, Gynecology and Abdominal Surgery will be held in the Third Baptist Church on Grand Avenue, a situation well suited to the demands. The sections on Orthopedics and Nervous and Mental Diseases will meet in the Law School of the St. Louis University, on Dindell Avenue, a few steps west of Grand. The hall easily seats 500, and is both comfortable and convenien'. Dermatology and Syphilis and Urology will use the large Union Methodist Church, on Delmar Avenue, just west of Grand, which meets every requirement. The sections on Gastro-Enterology, Proctology and on Preventive Medicine will use the large hall in the Musicians' Club on Pine Street, east of Grand Avenue, and next to the building of the St. Louis Medical Society, where the House of Delegates will hold its sessions. The section on Stomatology is assigned to the assembly hall of St. Peters Parish House, one block west of Grand on Lindell. Immediately in this district will be found three of St. Louis' most important clubs, the St. Louis, University and the Columbian. Restaurant catering to every grade of patronage are numerous in the district and precautions have been taken to insure that normal rates continue during the meeting.

The St. Louis profession is preparing for an unusual attendance; hotel reservations are coming in rapidly, but it is purposed that even the late comer shall be comfortably housed. The wise traveler, however, makes his reservation as early as he finds it possible. M. B. Clopton, 3525 Pine Street, St. Louis is chairman of the Committee on Sections and Section Work.

SCIENTIFIC EDITORIALS

PLEURAL EMPYEMA.

The problems associated with pleural empyema are of interest alike to the diagnostician, the internist and the general surgeon. There is no surgical affection which demands greater surgical judgment than the treatment of pus in the pleural cavity.

When the patient is seen early in the course of the affection and the diagnosis of pleural empyema is made, aspiration with a small needle should be immediately practiced, and if a laboratory is accessible the kind or kinds of micro-organisms responsible for the production of the pus ascertained, as future treatment depends greatly upon the nature and number of the bacteria present in the fluid. If the bacteriological findings show a preponderance of pneumonia or influenza bacilli, aspiration of the contents of the cavity and the injection of 20 to 40 cc. of 2% formalin in glycerine twenty-four hours old will most likely be sufficient to effect a cure.

In many instances the infection is primarily due to pneumonia or influenza bacilli, but after a time—and especially was this true during the autumn of 1918 following the influenza epidemic—these bacteria are replaced by more virulent types, such as streptococcus hemolyticus and sometimes streptococcus viridans.

In pleural empyema due to streptococcus hemolyticus infection many patients have succumbed following rib resection and drainage, and the operation was given as the cause of death, whereas the condition was septicemia or overwhelming toxemia from absorption of material from the lung, and the patient would have died even had no operation been performed for evacuation of the pleural contents.

The most desperate cases of pleural empyema, in the author's opinion, are those in which the pus is more or less sanious. These are the ones in which bacteriological examination usually shows pure cultures of streptococcus hemolyticus. In all such instances, as soon as the pneumonic process has sufficiently subsided, a rib should be resected, a long tube inserted, and Dakin or Hyperchlorite solution used, beginning about ten hours after resection and repeated every two hours for several days. The solution is introduced and the cavity allowed to drain until the two-hour period has elapsed and another treatment then given.

While numerous attempts have been made by various operators to devise a more effective plan of treatment than rib resection, it is still believed where aspiration and the use of formalin do not suffice, the best method is to resect one or sometimes two ribs under strict asepsis and thoroughly drain the pleural cavity by means of a rubber tube at least one-half inch in diameter. The use of a smaller tube is ineffective because there is usually a fibrinous deposit in the lower portion of the cavity which it is impossible to dissolve, and in consequence drainage is imperfect. It is claimed by some operators, however, that Dakin's fluid will cause disintegration and solution of the fibrinous exudate so it will pass through a small tube.

It is not believed the mortality is increased by rib resection in the treatment of empyema, as it can be done by the average operator under local anesthesia within about ten minutes. The author has seen a large number of patients thus operated upon with recovery who seemed to be unsatisfactory risks for general anesthesia, but if the patient is extremely nervous ether anesthetization by inhalation may be used, giving as little as 40 or not more than 90 cc.

As soon as conditions will permit after rib resection the patient should be placed in a wheel chair and rolled to a porch or other location where he will get an abundance of fresh air, as the lung seems to more readily expand by the exercise thus secured. Where there is undue delay in expansion water may be blown from one bottle to another to exercise the lung.

The danger from too long delaying operation for pleural empyema is the likelihood of the visceral pleura becoming thickened to such an extent that, after evacuation of the contents of the cavity, normal expansion of the lung is prevented. It is in such cases that sometimes the Schede or some other radical operation becomes necessary to bring about collapse of the cavity.

It has not been the author's misfortune to fail in securing closure in a single case of empyema after resection of the rib, and where closure has failed in other hands there was probably either a tuberculous empyema, or the operation was so long delayed that the pleura was greatly thickened and did not permit expansion of the lung afterward.

FRANK T. FORT.

TRACHOMA.

My experience of five years as a government physician among the Indians in the far West gave me an opportunity to study this disease and its effects among thousands of cases.

This disease is allied closely to other sociological problems, viz.: improper housing, overcrowding and poverty. Although it is a mistake to assume that trachoma is found only among the poor, for then we would deny the contagiousness of the disease. However, in my experience the three diseases mostly found among the poor, the ignorant, the insanitary are tuberculosis, smallpox and trachoma. To eradicate these diseases is not then simply a matter of treating separate cases. The entire population must be raised en masse to a better standard of living and higher sanitary condition. Education in the home and school is our best hope of prevention. Treating isolated cases will not suffice.

It is the practice in the government schools for Indian children for the physician to examine them carefully for trachoma at the beginning of school, and promptly and continuously treat them. The common practice was to admit them in squads of ten to the school hospitals for operation. Expression was found the most efficient surgical means for the removal of the trachomatous granules, as less cicatricial changes followed than in any form of grattage. Many of these cases had complications, as corneal ulcers, iritis and acute exacerbations, which had to be treated first.

For the ulceration, it was often found necessary to cocainize the eye and apply iodine or phenol directly to the ulcerated area. For the iritis, atropine and hot fomentations were found efficacious. For the acute exacerbations argyrol was curative.

It was found highly dangerous to express the lids when any sort of complication existed. A terrific case of panophthalmitis with consequent loss of the eye, was a sufficient lession for all time to desist from surgical means only when an uncomplicated case of trachoma existed.

After expression it was found extremely beneficial to allay the resultant inflammatory reaction by the use of hot fomentations. This was not only helpful in preventing complications, but was especially grateful to the patient. A drop of sterile sweet oil was dropped in the eye to prevent gluing of the lids.

Just the proper degree of pressure must be used when expression is practiced to prevent injury to the conjunctiva, especially in young patients where hypertrophy has not yet developed. It was my misfortune to observe several cases in young children where the tarsal plate was partially exposed and projecting on account of excessive and rough manipulation.

Practically all the cases were done under local anesthetic. A general anesthetic was only used in young or excessively nervous or undisciplined children. The general preparatory procedure was to cleanse the region of the eye externally as in any surgical operation. Then the eye was flushed with warm antiseptic solution. Frequent instillations of a five per cent cocaine solution for a period of five minutes was found to give sufficient anaesthesia to proceed with the expression. It was my custom to scatter the pure crystals of cocaine over the surface just previous to the operation. I have never seen any toxic symptoms follow this procedure.

At the boarding schools it was found best to hospitalize the cases after operation for several days and give repeated hot fomentations and keep the pupils dilated to prevent iritis and adhesion of the iris to the lens.

In some of these schools as high as 70% of the school children were found affected. So it was found advisable to segregate these patients in one separate school room or rooms, or in the most cases a row or two in a room, furthest from the light was allotted to them. This separation was continued even to the dormitories and dining rooms. Even then it was extremely difficult to prevent cases occurring among pupils not previously affected. The exchange of pencils, knives, etc., and in the games on the playground, as blind man's buff, for instance, where the fingers come in contact with other faces, were prolific sources of contagion. The Pullman system of towels was installed in all dormitories to lessen the chances of contagion, and every care taken to minimize the opportunity for a new case developing.

The follow-up treatment was generally given over to trained assistants, usually a teacher or matron of one of the dormitories. A record book was kept and the daily application of sulphate of copper duly checked against each patient. The training of assistants is always necessary as even so simple a procedure as the proper use of a medicine dropper is unknown to many nurses and to the laity. They invariably want to drop the medicine directly upon the eyeball and thus produce a mild and unnecessary shock. The use of the sulphate of copper pencil is also a matter not to be disregarded. It should be used lightly at first, and repeated daily for its effect in producing local hyperemia and thus gradually bring the conjunctiva back to a normal condition. Of course, the conjunctiva is never absolutely normal again after the ravages of trachoma, but the removal of the granulations is effected and the membrane becomes smooth again. Many an adult patient may be instructed in the proper use of the sulphate of copper stick and thus treat themselves.

It is interesting to know what we do in an expression or grattage. Do we produce an active hyperemia and is this the chief curative or rather restorative factor? Undoubtedly we remove also the trachomatous material in which is imbedded the specific micro-organism responsible for this disease.

If properly performed the results of the operation are almost magical. The irritation and discomfort complained of by the patient is greatly lessened and the corneal injection disappears.

In a wholesale examination of school children it is possible that cases of follicular conjunctivitis are often mistaken for trachoma. But in my experience in examining thousands of school children, not all of them in the far West and not all of them Indian children, has taught me that if I find an abnormal condition upon the eyelids of one child to take especial note of a brother or sister, and no matter if you call it folliculosis or trachoma, you invariably find some or all the children affected in the same family, and going back further yet you will find the parents suffering from the same ailment.

Is follicular conjunctivitis contagious or is this simply a mild form of trachoma? The fact undeniably remains that if some of these cases are folliculosis, expression invariably helps them and they are quickly cured. Why then quibble over the differentiation and criticise the diagnosis? Also in my observation from the macroscopic appearance, the lids gave all the signs and diagnostic points ascribed to folliculosis, but more careful examination revealed the fact of the presence of scar tissue and some distortion of the conjunctiva, showing that the granulations were deep-seated and thus pointing unmistakably to the diagnosis of trachoma.

In true trachoma we find then the granulations deep-seated and located and generally found over the tarsal plate. Of course, in folliculosis we do not find any corneal complications, but neither would you expect that in a mild case of trachoma. Vision is not affected in a case of follicular conjunctivitis, but there is always impairment of vision in true trachoma. I have not found the differentiation that trachoma is found at all ages, and that folliculosis only found in children and adolescents, of much help in diagnosis. In a region known to be affected with trachoma, is it always possible to absolutely differentiate this condition? I make it a rule to treat all cases alike. If the condition clears up quickly, well and good, call it follicular conjunctivitis. If the condition remains obstinate and not quickly amenable to treatment, call it trachoma, if you like.

No mater whether it is called this or that, it does undeniably spread to members of the same family and to inmates of institutions and to pupils of the same school.

Trachoma is a dangerous and destructive disease, leading to blindness, helplessness and pauperism. To combat it by any and every means at hand is our duty as physicians and citizens. And to eradicate trachoma from the school children of any community is a goal toward which we must strive with earnestness and zeal, for the goal means increased efficiency of the coming generation.

V. D. Guittard.

POST-ANESTHETIC NAUSEA.

Eliminating or diminishing the extremely disagreeable and often dangerous nausea that so frequently follows general anesthesia has been the aim of anesthetists and surgeons, since we have paid somewhat more attention to the refinements of anesthesia administration and have demanded or striven for a narcosis free from discomfort as well as from danger. That much has been gained will be admitted by any one whose observation extends back over a decade or two. The advances in the technic of administration alone accounts for much of this; the change in the method of preparation of the patient—by which he is neither starved nor purged to such a depleting extent as was formerly deemed necessary—and in this part of the country the almost complete substitution of ether for chloroform as a routine agent, have all played their part in the noted improvement.

Before intelligently attacking post-anesthetic vomiting we must come to a conclusion as to its cause. We have noted in the literature only general and incidental reference to the subject, so as there are several distinct types of the condition recognizable, we have attempted a rough classification of the nauseas following general anesthesia, that we may more logically attempt prevention or relief.

There are individuals to whom the mere smell of ether is nauseating. Such patients will begin to retch at the first exhibition of the vapors, and as they continue while consciousness lasts or longer, their memory of an ether induction is a nightmare, and their susceptibility is so increased that not only do they vomit as long as any ether is in the system for elimination, but are seized with nausea afresh whenever another patient from the operating room is brought into the ward with the odor of ether surrounding him like a cloud. This is the type we will call reflex, fortunately not very common. It may be prevented during the induction by the nitrous-oxide preliminary—the "gas-ether sequence," or by the use of essence of orange to mask the ether odor until unconsciousness is achieved. It is the type that Lumbard treats by keeping an orange essence saturated piece of gauze over the nostrils during the elimination period, the object being the substitution for and masking of the unpleasant ether odor and taste by an aromatic and pleasant one.

Another type vomits two or three times upon recovery. Their whole nausea does not last more than an hour or two, and upon the elimination from the stomach of ether-laden mucous and saliva which has been swallowed during induction the nausea ceases. This type we may term gastric nausea, as apparently the gastric irritation is the cause and the emptying of the stomach brings relief. In this type the ether in the stomach only, and not in the general system acts as an emetic.

The third type is the persistent wearing nausea lasting apparently without cause for from twelve to twenty-four hours to two or three days and formerly resisting all treatment. We are convinced now that this is due to acidosis and can be successfully combated and more successfully prevented. It was naturally more prone to follow chloroform than ether and for that reason has largely disappeared with the abandonment of the former agent. This type of nausea presents a different picture from that first described. The patient is depressed. The expression is characteristic of severe illness. The patient looks and is "sick." The nausea is merely one distressing symptom of his trouble.

We believe all post-anesthetic nauseas can be accounted for in this rough classification of three groups. Of course, two or all three may be acting in one individual, and equally, of course, we may have incidental vomiting following anesthesia, but not caused by it. The morphine given before and after operations is a frequent cause of nausea. Many people, as all general practitioners know, are nauseated by morphine; many know of this effect upon themselves and request that the opiate be withheld. The surgical condition for which the operation was made may have itself caused nausea for some time preceding, and this nausea will likely continue for a day or two. Appendicitis, cholecystitis, gastric ulcer or cancer are examples.

Nitrous-oxide oxygen is followed by nausea in a greater number of cases than is generally it is transient and negligible, the patient vomiting once or twice upon awakening, but believed. In the large majority of patients occasionally we have seen it persist for hours. These case seem not to come under any group or our classification, unless it be group three, and that we consider doubtful. We are inclined to believe that in some way the rebreathing technic of a nitrous-oxide oxygen administration, with its early though transient carbon dioxide saturation and resulting temporary blood pressure increase, accounts for it. This seems the more plausible, as the length of time the narcosis is continued seems to have nothing to do with nausea. A purely hysterical or neurotic origin also suggests itself regarding this nausea.

That we occasionally get an impure article in whatever agent we may be using is inevitable. With all the care humanly possible to exercise this will occur. It was shown several years ago in the report of the Lakeside Hospital on its experience with its own plant for generating N_2O that disturbing and dangerous impurities may find their way into the gas. That even the compressed gas delivered in high pressure tanks by the largest and most reputable manufacturers may occasionally be impure, is at least probable. Chlorine, oxides of nitrogen and other impurities may be found in traces. The same is true of ether and choloroform. Cotton states that carbon mon-oxide is generated by superheating of ether in contact with metal and traces are thus generated when the cans of ether are soldered. He affirms that the slightest trace of this deadly gas will cause intense and prolonged nausea. These rarely possible causes of post-anesthetis nausea are merely mentioned in passing. We are sure that if the product of a standard house is used the cases of toxic irritation and nausea will be so rare as to be negligible.

What shall we do by way of treatment and better still, prevention of post-anesthetic nausea? Remember that our classification of three groups is very broad and rough. Many considerations must be kept in mind by both surgeon and anesthetist in our effort to overcome this distressing sequel, and co-operation and teamwork will avail much. The extremely profound narcosis demanded by some operators for intra-abdominal work surely predisposes to later persistent vomiting under whatever group of vomiters the patient may fall. Guedel, Ben Morgan and many others have laid stress upon the fact that it is the excess of the agent beyond the amount needed for quiet, comparatively light anesthesia with which the economy is burdened for later elimination that acts as toxic substance. The gradual accumulation beyond what is necessary to just maintain the lightest plane of anesthesia under which the surgery may be accomplished. Elimination of all these agents begins almost coincidently with absorption; therefore, it is obviously easy in a one or two hour administration to load up the circulation with an excess, the later elimination of which will tax the outraged economy and every gland plus lungs and skin will be busy with the refuse for many hours.

Minimum dosage then with the surgeon training himself in gentle manipulation so that he may do his abdominal work under the lightest possible anesthesia; the anesthetist keeping to that plane of anesthesia recently described by Guedel in his "Sub-Classification of the Stages of Ether Anesthesia," as the first stratum of the third stage, i. e., the degree of narcosis short of paralysis of the motor muscles of the eyeball, and thereby indicated by a sluggishly oscillating eyeball. This is a very valuable sign in steering a course along a plane of anesthesia, which is of sufficient depth for all, but a few surgical procedures. It is a narrow plane, coming next after the throat reflexes and reflex of vomiting or retching disappear, and followed by the degree of anesthesia, in which the motor oculi muscles are paralyzed, and the eyes and face lose expression.

Routine alkalinization of every patient when time permits—and in all save frank emergencies this is feasible—continuance of this alkaline treatment post-operatively by a proctoclysis of Fischer's or some other alkaline solution. The avoidance of violent purgation or extensive starvation preliminary to operation; the nitrous oxide induction to catch the reflex type (and also to prevent nausea in the gastric type). It is during the gradual induction stage, if ether is used that the mucous membrane of the upper air passages become congested, which congestion contributes chiefly to the excessive mucous secretion observed after five or ten minutes. This mucus is itself saturated with ether after a few minutes administration, for elimination, as has been said, commences almost as soon as absorption, and is taken part in by the whole grandular system. Swallowed by mouthfuls during an ether induction, before the depth of anesthesia has been reached, that abolishes the swallowing reflex; this material lies in the stomach to act as an emetic as soon as recovery begins.

Forego the preliminary of morphine as a routine. Use it only in such cases as present a definite indication for it. In the gastric type of vomiting, give water, a half to a glassful, tepid, as soon as the patient can be made to swallow it. It acts as a lavage without the discomfort incident to the use of the tube. If the latter is used it should be before recovery, as its use will stimulate another kind of vomiting—by mechanical irritation—if used after the patient is awake. Lumbard's method is valuable in the reflex vomiting.

We are inclined to believe that in all types, save the acidotic, the agent used cuts little figure; the method of administration, the quantity used, and the patient's idiosyncrasy being the chief factors. As an example of the latter, we have in mind a woman, in whom the inhalation of chloroform causes a reflex nausea before any other effect of the agent is observed. It persists until narcosis is attained. The same individual, who declares the odor of ether pleasant to her, can go through a straight ether anesthesia, including induction, maintainance and recovery, without a suggestion of nausea.

This is a good subject for surgeon and anesthetist to co-operate on. For after the safety of the patient we may well look toward the prevention of those factors which, while not of vital importance, probably tend to add distress and discomfort to his recovery. W. Hamilton Long.

ORIGINAL ARTICLES

THE SIGNIFICANCE OF THE WASSERMANN REACTION.*

By Leon K. Baldauf, Louisville.

The Wassermann reaction accepted now universallly as a test for diagnosing syphilis owes its discovery to studies in immunity; to the discovery of the process of bacteriolysis and of haemolysis and to the principle of complement fixation. In 1888, the studies of Nuttall on bacteriolysis appeared, followed in 1898 by the work of Bordet on haemolysis. In 1908 the work of Bordet and Gengou on complement fixation was published. The application of the Bordet Gengou principle to the study of syphilis was a natural outgrowth, and in 1906 the classical paper of Wassermann, Neisser, Bruck and Schucht appeared.

When I was asked to read this paper before the Kentucky State Medical Society I was requested to confine my discussion to the significance of the Wassermann reaction and to eliminate wherever possible technical considerations. This I shall attempt to do, recognizing the large number of workers and realizing the immense number of Wassermanns which have been done, one's personal experience means very little. A safe conclusion can be drawn only from the opinions of many, and then only from the larger clinics where thousands of tests have been made. On this account I communicated with many of the leading investigators and many of the larger clinics of the country.

The hope that conclusions would be more or less uniform was, I think, fulfilled. Differences of opinion affected only minor points. Before taking up the discussion of the Wassermann I wish to lay stress on probably the most important source of confusion. I refer to the lack of uniformity of technique. We have so many different methods; so many different modifications of these methods; so many different antigens, some simple and some fortified, that the results reported by different investigators are difficult to contrast. Within the last few years the cold fixation method has been introduced with the result that a larger number of positive Wassermanns have been reported. Until the Wassermann is standardized by a committee comparable to the committee which revises the American pharmacopoea our conclusions will lack that definiteness which only a single standard of technique can bring. There has been considerable discussion already along this line, and it is possible that soon we may all be using a uniform technique.

What are the factors outside of the reagents which influence the Wassermann test? Brieffy stated they are the ingestion of alcohol, bacteria in the blood serum and variations in the strength of the Wassermann from day to day. Nichol and Craig have shown that the ingestion of alcohol has had the effect of rendering a strongly positive Wassermann negative and naturally making a weaker Wasserman negative, if taken in quantity from twenty-four hours to three days before the test. The reaction may remain negative for twenty-four hours or it may continue so for three or four days. It is essential then that the patient abstain from alcohol several days before the test is made.

2. *On the influence of bacteria in the serum.* Old serum has been found frequently anticomplimentary. Anti-complimentary substances in the serum have been found to be thermo-labile and thermo-stabile. When the serum has been contaminated with bacteria thermo-stable anti-complimentary substances are found. It is essential then that fresh serum, or as fresh as possible, be used and certainly that it be sterile.

3. *On the variations in the strength of the Wassermann from day to day.* In 1911, in the Journal of the American Medical Association, Craig published certain observations on the variation of the complement fixation reaction in the blood of syphilitics. Daily tests were made on primary, secondary and latent cases. In many untreated cases great variations occurred. A positive reaction may be followed in a day or two by a negative, to return to a positive in a few days. If this is true in untreated cases how much more frequent could it be true in treated cases, especially in treated latent cases? The conclusions which may result from these findings, although they are not universally accepted, would emphasize the importance of repeated examinations in suspected cases and might explain different reports from various laboratories when serum had been collected on different days. It might also militate against the provocative Wassermann, since the daily variation might be confused with a supposed provocative Wassermann.

The Provocative Wassermann.

In 1910 Gennerich first called attention to a negative Wassermann becoming positive following an injection of salvarsan. In some instances this occurred in a few hours and with others it required several days. Although these observations were confirmed by Milian, Herxheimer and Michealis, opinion seems to differ among a number of observers. This difference of opinion may be due (1) To the inability to distinguish between a provocative Wassermann and the daily variation in the Wassermann first emphasized by Craig; or (2) The Wassermann may not be repeated often enough. The method prescribed by Stokes and O'Leary consists in the withdrawal of blood before the injection of .3 to .6 gm. salvarsan and a subsequent daily examination for a week. The same technique must be adhered to throughout the entire examination.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 1921.

The efficiency of the provocative Wassermann tests in the various types of syphilis is shown in the following table:

Type.	No. of Cases.	% Positive.
Heredosyphilis	2	0
Osseous	5	20
Central nervous system	12	25
Vascular	3	33
Latent	10	40
Late cutaneous	5	60
Late mucous membrane	5	80

From Craig, "The Wassermann Test," page 236.

The indications for a provocative Wassermann as given by Stokes and O'Leary are as follows:

(1) A definite history of a primary or secondary lesion or a suspicious genital sore of any description.

(2) Syphilis in husband or wife or a history of sore in either.

(3) Treated cases to determine the fact of cure or need of further treatment. One-third of the cases treated by them gave a positive provocative effect.

(4) Obscure bone or joint lesions.

(5) History of miscarriages unless the anatomical cause is glaringly obvious.

(6) Mothers of syphilitic children without clinical signs or the disease.

(7) Cases with a history of a positive Wassermann elsewhere, negative on present examination.

(8) Mental deviates and constitutionally inferior individuals with suspicious histories.

On Wassermann Fast Syphilis.

In the November, 1920, number of the American Journal of Medical Sciences, Stokes and Bushman, after defining what they consider a Wassermann fast syphilitis emphasize the very careful clinical examination of the patient and maintain that the finding is of considerable significance; that it has no relation to any particular type of spirochaetal infection, and that it means severe infection either of the cardio-vascular, osseous or central nervous system.

The average resistant Wassermann patient in their series had received fourteen arsphenamin injections and ninety 4 gm. 33% inductions administered intermittently in eleven months and equivalent to about six months treatment. A review of their 100 Wassermann fast cases showed the following syphilitic involvment: Cardiovascular, 44%; central nervous system, 30%; osseous, 30%; visceral (hepatic, splenic and gastric), 21% cutaneous and mucous membrane, 17%; Lues hereditary, 10%; Lues latent, 10%. Their guide to treatment was: "1. Search every accessible organ and tissue in the Wassermann fast case by every clinical available method for evidence of syphilitic changes. 2. Weigh the degree of activity of the process and the extent of the damage and probable recuperative power of the most vital structure involved by the infection. 3. Identify the weakest element in the patient's makeup and estimate the tolerance of arsenic and mercury of the structures which must bear the brunt of the treatment by effects, such as liver, kidney and skin. 4. Do all that can be done to increase tolerance of treatment by protective measures. 5. If tolerance permits give at least as much treatment as to a fully developed secondary case. 6. Regard the Wassermann fast patient as potentially syphilitic; one to be searched for evidence of activity at intervals throughout life."

Results in Various Stages of the Disease.

The view generally, but not universally accepted, now seems to be that in syphilis early diagnosis with early intensive treatment gives the best results. In making a very early diagnosis the use of the dark field excells. Where this is not available, the Wassermann should be done. Every patient presenting a suspicious lesion should be given the test, "for if modern research upon syphilis has proved anything, it is that the morphology of the sore upon the penis is of much less value than formerly supposed, and that the typical Hunterian chancre is almost as much the exception as the rule. Mixed infection of chancre and chancroid with the resultant confusion in clinical pictures have been quite common and with the admissions by the best authorities upon syphilis that it is often impossible to diagnose syphilis from the appearance of the initial lesion the use of the Wassermann test and the dark field apparatus in every suspicious case is imperative." As regards the earliest appearance of the reaction, cases have been reported as early as three to five days after the appearance of the chancre. Some have reported a positive Wassermann before the appearance of the initial sore. This should be regarded with suspicion. In a series of 600 cases of primary syphilis, Craig reported the appearance of the 4 plus Wassermann as follows: First week, 36.3%; second week, 59.3%; third week, 68.9%; fourth week, 77.2%, and fifth week, 81.3%. As regards the result of the complement fixation test in the primary stage of the disease the following table is given:

Observer.	No. of Cases.	Positive.	% Positive.
Arning	48	25	60
Bering	56	47	84
Boas	50	30	60
Bruck-Stern	27	13	48.5
Fischer-Meier	8	6	75
Grosser	20	19	95
Hacken	17	15	88
Craig	1080	970	89.8
Kaplan	138	125	90
Noguchi	70	65	993.8
Swift	16	13	81
Vedder	242	178	73.5

From Craig, "The Wassermann Test," page 162.

Results in the Secondary Stage of Syphilis:

In the secondary stage of the disease the highest percentage of Wassermanns is obtained. Provided treatment has not been insituated at least 95% of the secondaries should show positive. Kolmer says he has never failed to get a positive Wassermann in a secondary untreated case. Boas obtained 100% positive in 437 untreated cases. The following table would show a variation from 79 to 100%:

Observer.	No. of Cases.	Positive.	% Positive.
Arning	107	99	93
Bering	113	111	98
Bruck-Sterns	115	101	87.1
Blumenthal-Roscher	131	130	99
Craig	2217	2132	96.1
Hohne	376	260	79.1
Lesser	204	186	91
Lederman	110	108	98
Merz	377	366	97
Noguchi	197	190	96
Schomefeld	112	112	100
Swift	76	70	92
Vedder	310	285	91.9

From Craig, "The Wassermann Test," page 170.

A negative Wassermann where there is a clear history of the infection should not exclude the disease. In rare cases even with a severe lesion the Wassermann may show up negative. Wassermanns repeated frequently will disclose a positive test.

Results in Teritary Cases:

There is probably no class of cases in which the Wassermann is more important than in teritary cases, especially those with associated nervous lesions. In a very large percentage of cases most of the patients have received treatment and, of course, this will affect the Wassermann positives. Where, however, there has been no specific treatment the percentage of positives should run between 80% to 85%.

Following is the result of tests performed by different investigators:

Observer.	No. of Cases.	Positive.	% Positive.
Arning	30	27	90
Bering	45	37	82
Bruck-Stern	47	27	57
Fleishman	41	40	98
Hohne	33	21	63
Craig	728	633	87.4
Lederman	78	75	96
Lesser	131	119	90
Merz	158	127	80.3
Noguchi	177	159	99.9
Swift	45	37	80
Vedder	263	237	86.3

From Craig, "The Wassermann Test," page 171.

Results in Latent Stages of the Disease:

Probably no disease exhibits more frequently intervals during which symptoms seem to have subsided more frequently than syphilis. Warthin in his classical paper on syphilis of the myocardium has shown positively that tissues may be invaded with the trepenoma pallida without any evident symptoms. It is essential then that frequent Wassermanns be taken during this period. In a large series of cases the following results were obtained:

Observer.	No. of Cases.	Positive.	% Positive.
Bering	147	75	48
Grosser	35	12	33.3
Craig	1525	1039	68.1
Fox	54	25	46
Lederman	78	36	46
Noguchi	265	206	77.7
Swift	39	25	64
Vedder	114	98	80.7

From Craig, "The Wassermann Test," page 173.

Results in Congenital Syphilis:

The percentage of cases showing a positive Wassermann vary with the character of the case. With those showing characteristic lesions at birth the test may be 100% positive, where the lesions appear later the average may be 80% to 85%, and where the disease is not suspected until much later the positive results may be only 70% to 75%.

The Wassermann has changed our conception of Colle's and Profeta's laws and has explained the apparent contradictions in the etiology of syphilis. Colle's law that an apparently healthy mother of a syphilitic child may suckle the child with impunity even though it presents the most infectious lesions of the disease, is explained by the fact that the mother, although showing none of the lesions of syphilis, is really in the latent phase of the disease, as demonstrated by the positive Wassermann reaction that is almost invariably obtained with the blood of such mothers. Profeta's law that the child born of a syphilitic mother, but presenting no evidence of the disease, may suckle its mother with impunity, has also been shown by the Wassermann test to be due to latent syphilis in the child, as in these children the test is generally positive, although no symptoms are present and none may appear for long periods of time. In other words, children born of syphilitic parents possess no immunity to syphilis, as was long believed, nor does a mother who with impunity suckles her syphilitic child possess an immunity, but is herself syphilitic." The difficulty in many instances arises in differentiating between hereditary and acquired cases, where the infection is denied and hereditary lesions are not evident.

Diseases in Which Positive Reaction is Obtained Where a Most Careful Examination Would Exclude Syphilis:

Much confusion has resulted from reports of positive Wassermanns in diseases not syphilitic, among these "are yaws or frambosia, leprosy, especially the tubercular form; some cases of relapsing fever, some malarial infections during the febrile stage and some instances of experimental trypanosomiasis in animals." It would seem from more recent and careful work, however, that the number of cases showing positive reactions is much less than was formerly suspected, and that the substance giving rise to a positive reaction is peculiar to the patient infected with syphilis.

Wassermann Test of Cerebro-spinal Fluid:

Probably in no lesion has the Wassermann yielded greater results than in the study of syphilitic diseases of the central nervous system. According to Fordyce, "From 25% to 35% of syphilitic individuals have positive findings in the spinal fluid during the first year of the infection," at a time when the symptoms may be present. Fildes, Parnall and Maitland "examined the spinal fluid of 1,314 men, most of them in the early stages of syphilis and found that 236 showed a pleocytosis of more than ten cells to the c.mm. and 91 gave positive Wassermann tests, while no nervous signs were present. Wile found 30% of secondary cases with a positive Wassermann in the spinal fluid, while Altman and Dreyfus on 56 cases of late secondary syphilis showed no less than 11 cases with positive spinal fluid. In many of the tertiary cases with absolutely no nervous symptoms positive spinal fluid may be obtained. In examining spinal fluids supposed to be syphilitic the amount of spinal fluid to be examined is most important. It is positively proven that the reaction here is quantitative, and that a positive Wassermann with 2 cc. has a certain significance, and where 1 cc. fluid is necessary for a positive reaction there are indications of a different clinical type. In all cases a negative report should not be returned unless at least 1 cc. of fluid has been used. Ordinarily a 4 plus Wassermann with .2 cc. of fluid or less points toward the paretic type of lesion, whereas when 1 cc. is required before a positive reaction is obtained, a leaning is toward the tabetic or the meningitic type of lesion. As additional sources of information, the cell count should be made, the globulin determined and the colloidal test required. Conclusions concerning paresis from the examination of the fluid seem to be more positive than those concerning tabes and syphilitic meningitis.

Interpretation of Results:

The conclusions of Craig seem to cover the question as well as any.

1. When the diseases other than syphilis that sometimes give a positive result with the Wassermann test can be excluded a 4 plus reaction is absolutely diagnostic of syphilis. It is believed that under such conditions this type of reaction is specific of the disease whether symptoms are present or not, or whether there is or is not a history of infection.

2. Under the same conditions a 3 or 2 plus reaction may in primary, tertiary and latent infections be regarded as diagnostic provided there is a clear history of infection or suspicion of clinical symptoms are present. In secondary cases this type of reaction is not diagnostic unless typical secondary symptoms are present. In the absence of either history or symptoms this type of reaction should not be regarded as diagnostic of syphilis.

3. A diagnosis of syphilis should never be made upon one plus reaction alone. Many perfectly normal individuals give this type of reaction at times in their blood serum. In latent infections a one plus reaction if persistent should be followed by further specific treatment.

4. A single negative reaction where there is no history of infection and where symptoms are not present is of considerable value as a corroborative sign that syphilis is not present, but where there is any suspicion that

the disease may be present this has very little value in excluding syphilis. In cases where the so-called delayed negative reaction occurs a careful investigation should be made as to a possible history of infection or the presence of suspicious symptoms. The interpretation of the results of the Wassermann test must rest very largely with the clinician, for the clinical picture present is often more decisive than the result of the test, and it is the clinician's place to reconcile the result of the test with the clinical picture rather than the serologist's.

In conclusion I wish to acknowledge my indebtedness to the work of Charles F. Craig, "The Wassermann Test," C. V. Mosby Company, St. Louis, Mo., 1921, for many ideas as to arrangement of subjects, for the charts which are included and for material which is quoted.

PRESENT TREATMENT OF SYPHILIS WITH ESPECIAL REFERENCE TO THE EFFICACY OF MODERN METHODS.*

By WALTER M. BRUNET, Brooklyn, N. Y.

The record of syphilis is a palimpsest written upon by many notable physicians since the fifteenth century. (For, the modern history of syphilis dates from this period.) Beneath the wonderful writing of the present day there is still visible the careful studies given to the master disease. Beneath these, however, may still be read the story of an unorganized profession groping in a wilderness of doubt, mysticism and ignorance until it was jolted into life by a whirlwind of disaster by the suddeness with which syphilis was spread over Europe by the sailors of Columbus upon their return from the island of Haiti. From this time until the present day clinical knowledge of the diagnosis and treatment of syphilis has gradually increased, and the progress made in solving the mysteries of this disease represents the history of modern medicine. The destiny of man upon the earth was changed by the ravages of syphilis during its appearance in the fifteenth century, and there can be no question but that through discoveries in the past twenty years his destiny has been remade. Thus, it can be said that the study of syphilis is the most interesting and absorbing subject in all the realm of medicine, for the reason that almost each century, since the fifteenth, has left upon record the impress that has not been effaced by the attrition of marvellous modern discoveries.

In the past twenty years with almost miraculous suddenness the whole aspect of our knowledge of syphilis has changed with the rapidly changing situation in medicine. From 1900 to 1910 one epochal discovery followed another in rapid order. The new science of syphiology was at hand, and with the combined work of Ricord, Schandinn, Hoffman, Metchnikoff, Roux, Bordet, Wassermann, Hata and Ehrlich, the whole fabric of the modern conception of this disease was welded together. (1) Ricord was the first to divide syphilis into three stages and his classification is followed today by most syphiolographers. Oliver Wendell Holmes said of Ricord, that he was "a skeptic as to the morality of the race in general, who would have submitted Diana to treatment with his mineral specifics and ordered a course of blue pills for the vestal virgins." In 1903 Metchnikoff succeeded in transmitting the disease to monkeys, Schandinn in 1906 demonstrated the spirochoeta pallida with the microscope, Wassermann announced the complement fixation test in 1906. Ehrlich discovered 606 in 1910, Noguchi grew the spirochoeta in pure culture in 1911, Swift and Ellis devised the use of arsphenamized serum in the treatment of syphilis of the nervous system in 1912, and finally Moore and Noguchi demonstrated the spirillum of syphilis in the brains of paretics and the spinal cords of tabetics in 1913.

(2) Thus, in an extremely brief and incompleted manner I have traced the most important discoveries in the study of syphilis in the past few years.

PREVALENCE OF SYPHILIS.

Syphilis is the disease universal; it is found in every habitable portion of the globe, and it brings to mind the lines of a good old Methodist hymn I learned some years ago, "From Greenland's icy mountains, from India's coral strand, etc.," so, it can be said that as well as being universal, it is almost an omnipresent one. It is especially a disease of dense population, and in large cities such as London, Paris, Berlin, New York, Chicago and San Francisco, thousands of infected persons could be found. In some rural sections of our country the disease is said to be rare, but whether this a real or an apparent condition is not known. However, we can only estimate in a very loose way the percentage of infected persons in the general population, for, we have only studies of particular groups of cases and these do not give us a fair cross-section of the entire population. They do represent, however, figures which are valuable for study of these particular groups, and a knowledge of the percentage of infections in a given group offers us valuable assistance in making further observations. Many careful and competent observers have made notable studies in the prevalence of syphilis, and the results of their researches demand serious consideration. Fournier estimated the percentage of syphilis in adults in Paris from 10% to 15%. In different parts of Russia some observers have reported as high as 20% of the entire population as being affected. In England the Royal Commission reached the conclusion that 10% of the whole population in large cities would be found to be infected. In Haiti in 850 Wassermann examinations among various classes of the natives 74% were found positive. Vedder states that 20% is a fair average for the men who enlist in the army. One observer reports 23% of 600 Wassermanns performed in the Harvard Neuropathologic Testing Laboratory as being positive. In many insane institutions the percentage of syphilitics has been found to be from 15% to 35%. Warthin makes the statement that he considers the incidence of syphilis to be 30% of the entire population. No further comment is needed to bring home the meaning of these figures to medical men.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

TREATMENT OF SYPHILIS

We will take up the treatment under four divisions as follows (3):

1. Early or prophylactic treatment.
2. Treatment of the primary stage.
3. Treatment of the early stage; first twelve months after primary stage.
4. Treatment of the late stage; second twelve months and later.

The subject of early or prophylactic treatment is one of the gravest problems before the medical profession today. It is not a medical problem solely, it involves the whole fabric of society, and for its solution we must look to the educators, sociologists, sanitarians and statesmen, as well as to the medical profession. We know that the majority of cases of syphilis are contracted through sexual intercourse, so the first and most effective method of prophylaxis is the abstinence from sexual intercourse out of the marital bond. This is thought by some to be an unattainable ideal, but it is not. It will take many, many years for this to be accomplished, but it is by no means an idea that is out of the realm of possibilities. Some one may ask how is this to be brought about? It will be brought about by means of education in the home, principally, "for the boy who is brought up with a sound character as a basis of self-control is physically incapable of an act that runs counter to the instincts of cleanliness bred in him with toothbrush and soap, as well as the more spiritual forms of cleanliness expressed in the clear eye and the ring of sincerity and honesty in the voice. The strongest safeguard against syphilis and gonorrhea which a man or woman can have is not knowledge of risks or of infection or familiarity with means of avoiding them, but sound character. The type of personality that loves its neighbor as itself; that lives rather than talks the square deal; that is tender, chivalrous, loyal and generous, possesses a margin of sexual safety for which there is no prophylactic substitute. Make a man first; teach him honor, make his word his bond, his first thought for the other fellow—then let him love, and there will be little cause for fear." (4).

In addition, well-known methods of medical prophylaxis are also of proven value where they have been scientifically controlled and applied. The most widely practiced early treatment measures consist of the use of calomel ointment to the exposed skin and mucous membrane and the use of a 2% protargol, or 10% argyrol solution, as an injection. Such treatment is very efficacious in preventing the development of venereal infection if used within the first two or three hours after exposure. Its value rapidly diminishes from then on, but it should be given up to at least ten hours. It is my opinion that the administering of an early treatment as to means of preventing syphilis and gonorrhea is a medical procedure. The unsupervised prophylaxis by the public is to be discouraged. Under public measures we shall just mention a program which was worked out by the army, navy, Public Health Service and the American Social Hygiene Association called the American plan. This plan thoroughly covers the work of prevention and treatment through four main subdivisions. These are:

1. Educational and informational measures to spread adequate and correct information about the venereal disease for the whole public.

(a) The promotion of social hygiene education, including sex education in the home, school, churches and industries.

(b) The guidance of sex conduct of individuals into socially constructive channels from childhood up.

The educational methods are:

(1) Lectures.

(2) Motion pictures and other graphic exhibits.

(3) Literature.

(4) Publicity and general advertising adapted to educational purposes.

2. Medical measures designed to bring about a complete control of the venereal diseases.

(a) The provision of adequate and easily available facilities for the diagnosis of all infected persons.

(b) A more uniform provision for venereal disease treatment on the part of dispensaries and general hospitals.

(c) Improvement of treatment technique on the part of the medical practitioners.

(d) Continued research for the further improvement of diagnosis and treatment.

(e) A more frequent recourse to clinical and laboratory tests for syphilis and gonorrhea.

3. Law enforcement measures dealing with the making and enforcing of laws.

(a) The drafting and promotion of adequate social hygiene legislation.

(b) The control of habitual and incorrigible sex offenders.

(c) Measures necessary to protect the general public and particularly the delinquent girls of every community, including measures for their rehabilitation.

(d) The furnishing of counsel and advice to citizens and officials with regard to the advantage of, and necessity for, certain methods of procedure in order to secure law enforcement.

4. Recreational measures to stimulate individual, family and community recreation, as developed and advocated by agencies organized for such work. The occupation of spare or "slack time" by clean and adequate amusements and recreation for the public will go far toward counteracting the vicious offerings of the underwold. (5).

TREATMENT OF THE PRIMARY STAGE.

We shall now take up the treatment of the primary stage. The question of greatest importance in treating syphilis is that of early diagnosis, and it should be the constant effort of every physician to discover the infection at the earliest possible moment. To this end every suspicious sore should be repeatedly examined for the presence of spirochaetes. You can forget all that you have learned about a chancre being hard and a chancroid soft, the clinical characteristics of primary lesions; viz., one builds up, is plus, the other pulls down, and is minus, and many other points which are of little practical value. If the sore is suspicious, lose no time in having a competent microscopist examine it for the presence of spirochaetes, and do not be satisfied with just a single examination, have it repeated several times. Many syphilographers are very skeptical regarding simon pure chancroidal infections, for, in their experience the great majority of so-called chancroids have been found to be syphilis. In some cases even the best men fail to find the spirochaeta, and in those cases have a Wassermann done twice a week for three or four weeks until the question can be decided. Syphilis is never a local disease; when the chancre makes its appearance the spirochaete is disseminated through the body. Craig gives several tables showing the results of examination of primary cases by the dark field and by the Wassermann tests. (6.)

TABLE XXVIII.

Result of examination of primary cases of syphilis by dark-field and the Wassermann test.*

Duration of Sore	Dark Field	Wassermann	Duration of Sore	Dark Field	Wassermann
2 days	+	—	1 month	—	++
3 days	+	—	7 days	+	++
7 days	+	—	9 days	+	+
7 days	+	—	14 days	+	+
10 days	+	—	15 days	+	+
2 weeks	+	—	1 month	+	++
2 weeks	+	—	1 month	+	+
3 weeks	+	+—	1 month	+	++
3 weeks	+	—	1 month	+	++
3 weeks	+	—	1 month	+	++
1 month	+	—	1 month	+	++
1 week	—	++	1½ months	+	++
1 week	—	+	2 months	+	++
2 weeks	—	++	1 month	—	—
3 weeks	—	+	1 month	—	—
1 month	—	++			

*The sign ++ equals absolute inhibition of hemolysis, the four-plus reaction of many laboratories.

TABLE XXIX.

Date of appearance of Wassermann reaction in weeks in 600 cases of primary syphilis. (7.)

Week After Appearance of Chancre	Total Cases	Positive	Per Cent.	Negative	Per Cent.
First Week	77	27	36.3	50	64.9
Second Week	155	92	59.3	63	40.3
Third Week	158	109	68.9	49	31.
Fourth Week	167	129	77.2	38	22.7
Fifth Week	43	35	81.3	9	18.6

So from these tables it will be seen that three cases gave a positive Wassermann in one week after the appearance of the chancre, and in two of the cases the dark-field examination was negative. These tables ably demonstrate that in every case of suspected primary syphilis both a dark-field examination and a Wassermann should be made. For the fate of the syphilitic rests with the physician who makes the positive diagnosis and begins intensive treatment.

Presuming that a positive diagnosis is made, how shall we treat the patient? Shall we excise the chancre? Excision of the chancre will not abort syphilis; the most you could hope to do would be to remove just the number of spirochaetes that were in the lesion. If it is felt that the chancre ought to be removed, do so, provided the removal will not cause deformity. If the chancre is not excised we should place an inunction of 33% calomel ointment on it twice daily for a week. How shall we treat the patient systemically? There is agreement among syphilographers that in early intensively treated cases cures are the rule; so the earlier treatment is instituted, the greater the chance for a cure. The patient must be free from any acute ferbrile disease and we should be careful that he has no disease of the liver, kidney, heart, etc., when they have no connection with his infection. Arsphenamine should be given only intravenously, preferably by the gravity method and slowly; 2 minutes for each 0.1 gram. The usual basis is 1 decigrams for each 30 pounds of body weight, but if we give moderate-sized doses, 0.4 decigrams, and rarely deviate from this, it will be found to be very satisfactory. Some excellent men are advocating the use of arsphenamine at twenty-four hour intervals for three or more doses.

The intravenous injections are given at weekly intervals for eight doses, with some preparation of mercury during the intervals, either the soluble or insoluble salts being used, intramuscularly, by inunction or intravenously. Some syphilographers, particularly those whose patients are under institutional control use mercury intravenously, but this procedure should only be carried out by the specialists in a well equipped hospital or office, as error in technique causes phlebitis, preiphlebitis, thrombosis and obliteration of the vein, and even with every precaution unpleasant and embarrassing results follow. However, it is a safe routine to give the mercury either intramuscularly or by inunction. If the patient is easily managed the inunction is perhaps the best, quickest and safest way to saturate him with mercury. This is administered daily by the patient himself using 4.0 grains unguentum hydrargyri, selecting a new site for each application, rubbing the drug into the tissues for twenty-five minutes each time. Usually eight doses of salvarsan and sixty rubs of mercury is considered a course. Should one of the soluble salts be decided upon to be given intramuscularly there are several to choose from; bichloride is perhaps the most widely used; it is given from 1-12 to 3-4 grains daily or every other day. The succinide is very popular; it is given from 1-5 to 3-4 grains daily or every other day; the benzoate is widely used in doses from 1-6 to 1-2 grain; the biniodide and cyanide are also given. Of the insoluble salts the salicylate perhaps is the most widely used preparation; it is given from 3-4 to 1½ grains at five or seven day intervals; Gray oil is also used by some men; it is mentioned rather to be condemned than otherwise. It is given in doses of 1-2 to 1 1-2 grains at 5 to 7 day intervals. At the end of this period have the patient rest for four weeks, take a Wassermann on both the blood and spinal fluid; if positive carry out the same treatment; if negative, repeat the mercury only.

Some excellent men are using neo-arsphenamine instead of arsphenamine in the treatment of syphilis, and in some respects it has an advantage over the arsphenamine. The neo is freely soluble in water at body temperature; it does not have to be neutralized before administration; it can be given in concentrated solutions, and it can be administered at shorter intervals with a greater degree of safety than arsphenamine. The dosage of neo. is 50% greater than arsphenamine. At this point I want to call your attention to the importance of reading the directions packed with each ampoule of arsphenamine, as there are variations in the method of preparing the solution, viz., the product of one manufacturer requires hot water to dissolve it; that of another water at room temperature; so, the importance of reading the directions each time can be readily seen.

To recapitulate, eight doses of arsphenamine intravenously at weekly intervals by the gravity method, to be administered slowly, allowing two minutes for each decigram of the drug administered. Mercury, either in the soluble or insoluble form, or by inunctions, the soluble to be injected preferably into the subcutaneous fat, and the insoluble into the muscles, to be given in accordance with the preparation selected. If the soluble form is selected, it should be given every other day at least; if the insoluble, every five to seven days. If inunctions are prescribed 80 rubs are given. This outline is considered a course of treatment. It usually requires several courses to obtain a persistently negative Wassermann reaction.

TREATMENT OF THE EARLY STAGE—FIRST TWELVE MONTHS AFTER PRIMARY STAGE.

The treatment of the early stage differs from that of the primary stage only in the number of treatments given and the interval of rest between treatments. A course of eight injections of arsphenamine is given and the mercury is administered between the doses as they were in the treatment of the primary stage. After this series of treatments which cover a period of two months or two and a half months, the patient is allowed a rest of one month, and at the end of this period a Wassermann is taken on the blood and spinal fluid. The blood will usually be found positive and in a number of cases, between 15% or 20%, the spinal fluid will be found positive. It is obvious if the spinal fluid is positive, treatment for neurosyphilis must be instituted. Usually the Swift-Ellis treatment or some modification of this can be used. Some good syphilographers just tap the cord and drain. After the second course, which covers a period of two or two and a half months, a rest of two months is given, and a Wassermann examination made on both blood and spinal fluid at the end of the resting stage. If the blood test is positive, the same course of treatment is given, and at the end of the same a two months rest is given and the Wassermann is again taken. If the spinal fluid is positive treatments must be directed to the nervous system. If the blood reaction is still positive, the same treatment is carried out. Usually three courses of treatment will carry a patient through one year. If at the end of twelve months the Wasserman is still positive, the same schedule as outlined for the first year is carried out. It is of the greatest importance that the spinal fluid be examined both by the Wassermann test, chemically and microscopically, examinations being made for evidence of cerebrospinal syphilis. It is important that a blood examination and an examination of the spinal fluid be made after the first course of treatment during this stage of infection.

Various figures have been quoted as to the percentage of cases showing involvement of the nervous system early in the course of the disease which is the first period of generalization of infection. Fordyce says that the nervous tissues are involved in about 25% of all cases of syphilis. (8.) In patients who have had insufficient treatment with arsphenamine or mercury, but particularly the former, we see involvment of the nervous system. In some cases, despite all treatment, the nervous system becomes involved. Whether this is due to a strain of spirochaete with neurotrophic tendencies, is a moot question, but this point is being studied with prospects of determining the cause of the vagaries. Several investigators have reported the existence of a familial type of neurosyphilis with strong arguments in favor of a strain of spirochaetes which have an affinity for the nervous system, and are rapid in their invasion. (9.)

McDonagh believes that the spirochaete has a complicated life cycle, and that arsphenamine kills only one or two phrases. (10) An other explanation is that the organisms become encapsulated and the medicament does not reach them. The third explanation is that they become arsenic fast. The parts affected may be a single nerve or it may involve the brain cord or meninges. Men develop neuro-syphilis more often than women. It seems that women have some protective factors which men have not. What these are, of course, are not known. However, in the treatment of this stage of the disease a good plan to follow is the one outlined in the Red Manual:

SCHEMA (11).

FIRST YEAR.

First course of treatment	2 to 2½ months
Rest	1 month
Second course of treatment	2 to 2½ months
Rest	2 months
Third course of treatment	2 to 2½ months

SECOND YEAR.

(If Wassermann is Negative.)

Rest after third course	4 months
Course of mercury	2 months
Rest	4 months
Course of mercury	2 months

SECOND YEAR.

(If Wassermann is Positive.)

If Wassermann remains positive, complete course of treatment should be given with intervals of rest of two months each.

In the treatment of the late stages, the plan of treatment for that of the early stage is carried out with the addition of potassium iodide. In the treatment of these late cases particular attention should be directed to the cardio-vascular system and the viscera. In cardio-vascular syphilis, you must be careful in administering arsphenamine. Small doses should be given and the patient closely watched. Mercury and potassium iodide are indicated and they are of great value in this stage of the disease. Also in cases where the Wassermann is persistently positive and there is no involvment of the central nervous system, potassium iodide gives good results. In gummatous changes in bones potassium iodide in invaluable. Do not forget the general hygienic treatment of these patients for many of them need tonic and supportive medication.

Our full duty has not been done if we treat the patient under our immediate care and fail to go into the familial and social side of the disease. We know the great danger the wife is in if she has a syphilitic husband and vice versa. Also we must think in terms of family life when we see a syphilitic patient, for syphilis is a communicable disease that is transmitted from parent to offspring, and it is our duty to inquire into every angle of the social, as well as the familial history. This is not only good medical practice—good social welfare; it is good public health. This social follow-up work is being done in large clinics and surely the private practitioner can do no less in his work. From the public health side, we are the guardian of the health of the people, co-operating with all recognized health agencies and the responsibility is placed squarely upon our shoulders to do all in our power to prevent disease. In syphilis we have a disease that with one or two doses of arsphenamine the patient ceases to be, for the time being, a menace to the community. Arsphenamine causes a rapid destruction of the spirochaete in local lesions, and this is a very fortunate occurrence and one that is of great importance in public health activities.

Syphilis is the greatest problem today in medicine, not excepting tuberculosis. Syphilis causes race deterioration, shortens life, and produces hopeless forms of nervous and mental disease. Syphilis is intimately related to all branches of medicine, and for its mastery technical knowledge of the highest kind is required. In the past ten years almost a new specialty has sprung up to meet the requirements in private, institutional and public health practice. The medical profession and the public are learning that early, intensive treatment closely controlled by serological tests can cure a large number of cases in the early period of infection and prevent a high mortality of the late cases from cardio-vascular and neurosyphilis, many of which become public charges.

EFFICIENCY OF MODERN METHODS.

How can we tell when a patient is cured, and on what points can we rely? First and foremost, we must endeavor to make a diagnosis from the clinical standpoint. This method will always be used first. However, in syphilitic conditions the clinical evidence and findings are apt to lead us to erroneous conclusions, unless our patients have been under observation for years, for the modern treatment of syphilis is new, only ten years, and we have not had the opportunity of having our patients under observation over a long period of time. We have not had the privilege of following a sufficient number of patients from their early adult period through their marital life on to the second generation to draw any conclusions from. We cannot rely solely upon the clinical findings. The next point in our effort to determine whether a cure has been affected is in the laboratory, and from this source we can obtain information without which the determination of a cure would be impossible. The laboratory examination, like the clinical, must be carefully and skillfully done, for in the final analysis it is an amplification of the clinical observation. What could we do without the Wassermann blood test on the blood and spinal fluid or the colloidal gold test, cytological and chemical examinations of the spinal fluid? So in the determination of the cure of syphilitic infection we must make constant use of the laboratory as an aid to our clinical examination. A third method we must make use of is the post-mortem examination in which lesions in the blood vessels, viscera, brain, spinal cord, etc., are found. (12.)

Warthin has shown that healed syphilis is analogous to healed tuberculosis in the body. The destiny of the syphilitic patient rests upon the early diagnosis of his infection and the intensity with which the treatment is carried out during the first year. We have at hand to assist us all the modern aids to diagnosis: The dark-field illuminator for the microscope, the Wassermann test for the blood and spinal fluid, and the chemical and microscopical examination for the spinal fluid.

Just what we mean by adequate treatment can only be determined by close study of each individual case. While it is impossible to formulate a standard method of treatment in the various stages of syphilis, a minimum standard might be suggested, which, if closely followed, allowing, of course, for modifications which might be called for, will yield good results. During the session of the All-America Conference, the section dealing with the problem of syphilis was asked for a statement regarding the standarization of the treatment of syphilis. In approving the report of the section the Conference adopted the following resolution:

"Resolved, That with our present knowledge of the various factors involved in the treatment of syphilis, standardization of procedure is not possible. On the other hand, we believe that opinion is sufficiently united upon minimum requirements to justify their formulation as a practical guide. The following considerations deserve special emphasis:

(a) In treating syphilis we are treating an individual as well as a disease.

(b) The time which has elapsed since the inauguration of modern methods of treatment and our knowledge of the pathology and the pathologic physiology of the disease are insufficient for final conclusions. It is further

Resolved, That the outline of the method of treatment now detailed in the Manual of Treatment of Venereal Diseases (the "Red Book" of the United States Public Health Service), published by the American Medical Association, be continued as a guide to the minimum requirements of treatment until supplanted by something better." (13.)

Stokes says: "To tell a man with a four-day old primary lesion that six months of treatment will cure him is mere folly—to tell him that a year will do is rash—to tell him that two years will see him well is to enter on the border of conservatism. So, with the ringing maxim of Osler, I adjure you to 'know syphilis in all of its relations and manifestations and all things clinical will be added unto you.' "

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Biology of the Fetus.—Bylicki argues that the fetus swallows amniotic fluid reaching the throat through its nose. He also argues that when the fetal blood for any reason is not getting oxygenated properly, th eaccumulating carbon dioxid acts on the respiratory center and starts the respiratory muscles to action. The result is that fluid is aspirated into the air passages, but the movements of the respiratory muscles do not end here. The aspirated fluid is expelled by the expiration movements, of the respiratory muscles which follow. This explains why we never find fluid pouring from the mouth and nose when the new-born child is held head down. Daily experience teaches the exceptional rarity of this,

THE TREATMENT OF NEUROSYPHILIS.*

By H. J. Farbach, Lousville.

Prophylaxis: The prevention of neurosyphilis, to a great extent, depends upon the physician who treats the patient in the early days of his infection. Investigation has proven that general systemic invasion by the spirochate occurs much earlier in the progression of the disease than formerly thought, and that in many instances the nervous system is included in this early invasion. A positive cerebrospinal fluid is often obtained during the secondary stage, and in some instances before the eruption is manifest. It is true that in the most of these cases the fluid becomes normal under proper general systemic medication, but it must be kept in mind it is at this time that neurosyphilis may be inaugurated. We now know that the different types of neurosyphilis as we see them clinically are due to an active progressive infection, and they are not the aftermath or ashes of the original infection as was formerly taught.

The dark-field stage, or India ink slide, makes it possible to diagnose the infection during the first few days of the primary lesion. There is no longer any excuse for delaying the institution of treatment until the secondaries appear. If the physician has no microscope, or cannot recognize the organism, he can certainly make india ink slides and send them to a laboratory for investigation. It must be remembered it is in the first few days after the chancre appears that these procedures are of value, and that it is practically useless to examine the secretions of sore after it has been cauterized or treated with mercurial powders or ointments. When the diagnosis has been made, the object of treatment should be to destroy the greatest number of organisms in the shortest period of time compatible with the patient's welfare.

The intravenous administration of the arsenicals offers an ideal way to accomplish this, and it is a rare case indeed that does not respond promptly, but right here a large number of physicians of today are making a grave mistake. Either through ignorance or otherwise they are dismissing patients after two or three months of intensive treatment. In a very small percentage of cases syphilis may be cured in that time, but in the vast majority it cannot, and while lulled into a sense of false security by the absence of clinical symptoms, by this plan one is merely courting later neurosyphilis. In fact, it seems that this method of handling the disease predisposes to later nerve involvment. There is no question that during the general invasion organisms get into vascular spaces and tissues and these cannot be reached nor dispatched in a short time, consequently we must depend upon the administration of mercury over a long period for their eradication.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

The Wassermann reaction is but a laboratory symptom and its absence has no more significance than any other symptom. There are some men who advocate delaying treatment until the secondaries are well manifest, hoping the immunizing forces of the body may establish a process which will protect the nervous system against later involvement. With our present knowledge of the disease we can find no place for such an argument. First, because we know nerve tissues are involved at the time of the general systemic invasion. Second, that syphilis belongs to that class of infections which have little or no immune-producing properties. Third, that most of the cases of neurosyphilis we are seeing today are the results of the diagnostic and therapeutic measures used at the time when this policy was widely followed.

The next step in the prophylaxis is that no patient should be dismissed until a lumbar puncture has been made and a negative cerebro-spinal fluid obtained. An intraspinous needle in the hands of one who is clean and competent is absolutely devoid of danger. The only possible sequela is a transient headache, and this follows only a very small percentage of punctures. Experience has shown that the potential nuerosyphilitic will have a positive cerebrospinal fluid when all other signs and symptoms are negative and have been for some time.

It is not a rare thing for the suggestion of a specialist that a spinal puncture be done is met by opposition on the part of the family physician. This opposition can be due only to ignorance, for the records fail to show any reason why it should not be done.

Diagnosis: Just as we may expect most from our treatment of syphilis in the early stages, so may we expect to gain more from the treatment of nuerosyphilis when the diagnosis is made before irreparable damage has occurred. Spinal punteure is our one great diagnostic procedure and it should be done whenever there is any suspicion of nerve involvment. It does not require a specialist with a well-equipped laboratory to make a diagnosis in a patient whose reflexes are gone, or one who has startled his family with extravagant purchases or ideas. The time to think of nerve syphilis is when the symptoms are not clear cut or well-defined; for example, in patients with general debility without evident cause, with change of disposition, gradually increasing nervousness, with headache and sleeplessness, bladder disturbances, pains in the feet and legs. Many a beginning tabetic has been treated for "fallen arches." These are some of the most frequent early signs, and it is here that lumbar puncture is indeed a valuable diagnostic measure. It is simple, harmless, and it tells us much. To my mind it is impossible to have an active infection of the cerebrospinal nervous system with a negative spinal fluid. There may theoretically be an explanation for such an occurrence, but it does not seem practically possible. And even conceding that it is possible, it is so rare it cannot detract from the value of the procedure.

The positive spinal fluid with its increase in globulin content, cell count and positive Wassermann, is indisputable evidence and clarifies the diagnosis. Lange's gold chloride test gives evidence of paresis long before there are any clinical symptoms, so if we are to make an early diagnosis it must be by lumbar puncture. Around this positive finding we group the clinical symptoms present and make our final diagnosis.

Treatment: The treatment may naturally be divided into specific and general, and too often the latter is neglected. Tonics, reconstructives, alteratives, exercise, all play an important part in the therapy, and especially in advanced cases influence the ultimate result almost as much as specific medication. The mental attitude of the patients is also important; they are all apprehensive and easily influenced by suggestion. The substitution of optimism for pessimism cannot be overrated.

Focal infection and intestinal toxemia must receive due attention. We are not only dealing with nerve tissue, but the entire organism, and one cannot make much headway if the patient is not improving physically from every standpoint. Open air, sunshine, clothing, diet, all help and attention to these details is given full credit by the patient.

For convenience in detailing the specific medication these cases may be divided into three classes, viz., (a) the ill-defined types, (b) tabes, and (c) paresis.

In the ill-defined class are included all those who do not have typical classical symptoms of tabes or paresis. Here we are perhaps dealing mostly with meningeal lesions of the cord or brain. These lesions may be due to vascular changes or to new growth. In the brain group there occur such symptoms as headaches, general or localized, nervousness, sleeplessness, nausea, cranial nerve palsies, aphasias, hemiplegias, epileptoid seizures, etc. In the chord group we have gastro-intestinal symptoms, pains and aches in legs or feet (not lightning pains), bladder and rectal disturbances (retention or incontinence), and paraplekias. I have included this wide field in one class because in the beginning at least the treatment differs from that instituted in tabes or paresis.

Invariably I start these patients on intravenous medication and spinal drainage; no intraspinous medication. The intravenous medication consists chiefly of neoarsphenamin in doses varying from .45 to .9 mgm. in 10 to 30 cc. of water. Personally, I have not found any advantage in arsphenamin over neoarsphenamin, and it is unquestionably more toxic. In cases where there is an idiosyncracy toward arsenic one must depend upon mercury, but the results are never as satisfactory as those obtained with arsenic.

As to the spinal drainage: We remove 25 to 35 cc. at the first and second punctures; after this the amount is gradually increased at each draining until we "drain dry," and by this I mean that the fluid ceases to flow from the needle. Some men have stated that there is danger in draining below a certain point as registered by an instrument suggested for measuring the pressure within the spinal canal. All such instruments I have tried have been found unsatisfactory.

The patient is placed on a flat surface in the prone position on either side with a small pillow under the head. In some instances where the amount of fluid obtained is less than expected we encourage further drainage by having the patient increase the intra-abdominal pressure by whistling or trying to blow a horn. The pulse is watched and the patient is questioned frequently as to how he feels. When any unpleasant sensation, headache or weakness is noted we stop. Seventy-five cc. of fluid have been withdrawn frequently without an untoward symptom developing. The treatment is repeated every seventh to tenth day. Intestinal toxemia and focal infection are carefully investigated and taken care of. Tonics and nutritious diets are given.

If the clinical symptoms and fluid findings continue to improve after the fourth treatment, it is continued until everything is negative, the interval between treatments being gradually increased until the patient receives but two treatments a year. This is continued for two years when the patient is requested to return in a year if no symptoms are noted. If the clinical symptoms and fluid are then negative we dismiss the patient with instructions to report at once if any symptoms occur.

In the intervals between treatments mercury and iodides are given, the former intramuscularly. We use the red iodide in oil and the bichloride in a fatty base as supplied by the Metz Company. We have practically abandoned the use of the salicylate. The kidneys should be carefully watched, and if albumin or casts appear mercury is discontinued.

If after the fourth treatment improvement in clinical symptoms and fluid findings does not continue, we begin intraspinous medication. Of this I will speak later. We have found that about 50% of these patients do not require intraspinous medication.

Tabes: In tabes we have perhaps one of the most striking examples of the advancement that has occurred in diagnosic and therapeutic measures during the past fifteen years. The prognosis before the advent of intraspinous therapy was hopeless and horrible. Today, except in neglected cases, we can offer these patients a great deal, and in most instances make them useful citizens.

There are two symptoms which if kept in mind when examining every patient over forty years of age will help one to recognize beginning tabes before the patient is aware of any symptoms due to involvment of the nervous system: One is irregular or abnormal eye reflexes, and the other is bladder disturbances. While taking the history watch the patient's pupils; make this a habit. He may have come seeking relief for rheumatism, neuralgia, constipation, gastric disturbance, insomnia, sexual weakness, or some other complaint having no direct relationship to a grave nerve lesion, but as he looks at and beyond you, it may be noted that one pupil lags in dilation or contraction, or it may even already be fixed.

In eliciting bladder symptoms particular attention should be given to slight incontinance or occasional involuntary leakage day or night, also delay in starting the stream and in completely emptying the bladder. These patients often give a history of passing urine only once or twice in twenty-four hours, and then although a sense of fulness is present there is absence of the ordinary desire to urinate. The finger inserted into the rectum discloses no prostatic enlargement. A catheter introduced after supposed emptying of the bladder often reveals retention of a pint or more. The patient usually ascribes these urinary symptoms to his advancing age and thinks they are but natural results.

The classical symptoms are easily recognized if it is remembered that every patient is a possible neurosyphilitic, otherwise they even may be overlooked. The absence of tendon reflexes and muscle sense are of course pathognomonic. A lumbar puncture clinches the diagnosis. If the disease is recognized before there is a decided interference with the gait, it can be checked in the majority of cases by proper treatment. At times the symptoms are not due to actual nerve destruction, but to vascular changes which are readily corrected by treatment. In these cases the manifestations entirely disappear; but where the actual destruction has taken place the symptoms produced by such destruction are permanent. Further advance may and can be checked, but destroyed nerve fibers or cells cannot be replaced.

In tabes intraspinous medication is begun at once, the Swift-Ellis technic being still the favorite method in our hands. The patient is given .6 or .75 mgm. of neoarsphenamine intramuscularly. In about forty-five minutes from 70 to 80 cc. of blood are withdrawn in a sterile container. This is allowed to remain at room temperature until well coagulated, which requires one to two hours. It is then placed in an ordinary ice box overnight. The next morning the serum is carefully removed and centrifugalized at high speed for thirty minutes. All red blood cells must be removed. If much hemolysis has occurred, giving the serum a pinkish tinge, it may still be used, but it almost invariably causes a reaction which is not noted if a perfectly clear serum is obtained. The serum is diluted to 40 per cent with sterile isotonic salt solution and placed in an open water bath of 56° to 57° C. for thirty minutes. Collection and preparation of the serum must be handled under the most careful aseptic technic.

The patient is placed in the lateral prone position and spinal puncture made. About 30 to 35 cc. of cerebospinal fluid are withdrawn and 25 to 30 cc. of the autosalvarsanized serum injected by gravity. The patient is turned on the back and the foot of the bed elevated six to eight inches and this elevation maintained for four to six hours. With the average patient, provided the serum has been prepared properly, there is but little reaction—a degree or two of fever and at times slight pains in the legs. If necessary these are controlled by giving five grain doses of acetyl salicylic acid repeated at thirty minute intervals. In some cases, for from three to six hours, there may be severe leg pains requiring hypodermic of codein or morphine for relief.

The treatment is repeated every seven days. The amount of fluid withdrawn is gradually increased each time until from 50 to 60 cc. are removed. I never inject as much serum as fluid withdrawn. I have tried this in the past, but it almost invariably was followed by a more severe reaction and the clinical and laboratory findings did not justify this discomfort.

My experience has been that it is unwise to press intraspinous medication beyond a certain definite point. I have tried increasing the percentage of serum dilution, using 50%, 60% and 75% per cent dilutions, but have returned to the original 40%. The total amount at any one injection is limited to 50 cc. As long as improvement is noted this plan is continued, and in most instances suffices. When the point is reached that there is no further improvement in the clinical and laboratory findings, the autosalvarsanized serum is fortified by the addition of a small amount of arsphenamin.

Proper diet and exercise are very important factors which must not be neglected. Mercury by inunction or intramuscularly is used between treatments, but the kidneys must be watched as this agent often produces a decided albuminuria with casts. General tonics and alteratives are administered as indicated. The intestinal tract plays an important role in the improvement and must not be overlooked.

Many tabetics have urinary retention. If the amount is not over 100 cc., if the urine is clear and there are no subjective symptoms, leave the bladder alone. If the amount is great, the urine turbid and foul, causing unpleasant symptoms, such as leakage and irritation, treatment as indicated should be instituted, but it should be the minimum amount required, as a tabetic bladder does not respond favorably to ordinary measures.

Paresis: If a diagnosis of paresis can be made in the so-called asymptomatic stage, we may hope for definite and permanent results from treatment. In those cases where obscure symptoms, such as headache, nervousness, etc., have indicated the advisability of a spinal puncture, and a positive fluid with a paretic gold chloride curve was obtained, we are able to give the best prognosis. Here the disease is recognized before any of the classical symptoms have developed, and experience has shown that proper persistent treatment will cause disappearance of these laboratory and clinical signs, but I question if a cure is ever obtained after the disease has progressed to the point of giving rise to the classical paretic syndrome. Treatment unquestionably modifies the course of the disease even if delayed until this time. It clarifies the mentality, improves the general health, lengthens the periods of remission, but in my experience these patients die sooner or later of brain syphilis. The technic and general conduct of treatment for paresis is the same as for tabes.

In Conclusion: It cannot be emphasized too strongly that if we are to minimize neurosyphilis in the future, we must impress upon the general medical profession the importance of the proper handling of syphilis in its incipiency. Early diagnosis is not only possible, it is imperative. After diagnosis proper medication must be instituted and continued, and no patient be dismissed simply because he has taken a prescribed course of treatment, or has been free of clinical symptoms for a certain period of time.

There are numerous methods of treatment proposed, each enthusiast claiming his to be the better. It makes no difference what method is adopted, there is but one ultimate object to attain, *a cure*, which means absence of clinical symptoms, a persistent negative blood Wassermann and a negative cerebrospinal fluid. Any method which fails in this fails in everything.

Any doctor who accepts a luetic patient assumes the responsibility of that patient's future as far as the syphilitic infection is concerned. If he does not assume this responsibility, he has no right to accept the case.

In taking the histories of neurosyphilitics it is evident in the majority of cases that their existing condition is due to ill-advice or improper treatment given by the physician whom they consulted in the early days of their infection. In the past there might have been some excuse for this; today there is none but ignorance. With the present widespread distribution of medical publications such ignorance is unpardonable.

The etiology and pathology of syphilis are no longer debatable questions, they are established facts. Treatment has been removed from the purely empirical state it formerly occupied and has been placed on a sound scientific basis.

The value of the dark-field or india ink slides, the Wassermann reaction, and the spinal pucture can no longer be questioned. The doctor of today who proposes to treat syphilis and does not give his patient the advantage of these facts and procedures, is nothing less than a menace to his community.

The apathy of the general medical profession to this far-reaching, destructive, resistent disease in the past has been appalling A large percentage of them have been content to treat clinical symptoms. This condition of affairs must be abolished.

The problem of neurosyphilis, as it presents itself today, is not one of improving our present methods of treatment, but of educating the general profession concerning the importance of the proper handling of the disease in the primary and secondary stages.

DISCUSSION:

Edward R. Palmer, Louisville: It requires a great deal of courage to come before this body of scientifically trained men and take issue with the able exponents of the modern theories of the methods of handling syphilis, especially when I am to make a plea for a return to an old method, one I am afraid you will consider most reactionary. I stand practically alone among syphilographers of today in the belief that the best ultimate results in handling this disease will come by waiting until the development of the secondary period. Those who belong to the modern school of syphelologists base their claims on the efficiency of early intensive treatment upon the rapid disappearance of the initial lesion and the continued spirochaete, as well as the prevention of the development of the secondary symptoms and of a positive Wassermann. From this they assume that in many cases the disease has been aborted, and that in those in which this has not taken place generalization of the virus has been limited and involvement of the deeper tissues, particularly of the central nervous system, prevented. If there were any absolute assurance that this was always or even often the result, my position would be untenable, but the constant changes in the treatment of syphilis during the past ten years show that there is no such assurance. We no longer hear nowadays that one or two doses of arsphenamin will cure syphilis. On the contrary, we are told to give arsphenamin repeatedly and supplement it with mercury by injections or inunctions for a long time. If, on the other hand, future investigations prove that the catalytic theory of the action of antisyphilitic drugs is correct, and the spirocheate of syphilis is destroyed through the agencies of the antibodies alone, I believe my position will prove impregnable. I grant that syphilis is sometimes aborted in the primary stage, and am even prepared to admit that the early administration of arsphenamin or mercury materially aids in bringing this about. But this comparatively rare result is in those cases in which the natural physiological resistance of the tissues has practically limited the infection to the point of inoculation. It is in such cases alone that the early administration of arsphenamin proves successful, not because of its direct parasiticidal action, but because as a catalyzer it hastens the velocity of a reaction already taking place in the body. If it be granted, then, abortive measures are sometimes successful, should we not always resort to these, especially as we have no means of determining beforehand in which case it may or may not prove successful? At first this seems a logical conclusion, but if we consider deeply the question we will see that it is deduced from absolutely fallacious premises, which are:

(1) Syphilis always remains a local disease for a comparatively long time.

(2) That generalization takes place comparatively slowly, and that it has taken place is indicated by the development of a positive Wasserman reaction.

(3) That if we administer our treatment before the Wassermann reaction becomes positive and prevent it from becoming positive, we have thereby prevented generalization.

(4) That the drugs themselves bring about the abortion of syphilis through their direct parasiticidal action.

(5) And that the most important of all, although abortive measures prove unsuccessful, they will at least do no harm and probably limit the degree of generalization.

Time will not permit me to bring forward evidence and proof to substantiate my claim that these are fallacious premises. Suffice it for me to say I fear in the enthusiasm which has resulted from the almost miraculous rapidity with which arsphenamin causes the disappearance of the external manifestations of the disease, physicians have lost sight of the fact that in that greatest of all wars, the struggle for existence, which began at the dawn of life on this globe and will continue until it becomes extinct, the human body has evolved through natural selection and by survival of the fittest its own mechanism for combatting microscopic enemies, and if we would be of assistance in the never-ending struggle we should study how nature attempts to bring about a cure so that by a timely and judicious intervention of drugs we can aid in accomplishing it. This, gentlemen, is the physiological era of medicine, and we should use drugs as aids to natural physiological processes, and not germicides.

Stuart Graves, Louisville: I know there are many men who wish to discuss this interesting subject, and consequently I shall be as brief as possible. I might discuss it from two standpoints only: First, what the laboratory worker thinks the clinician should know about the Wassermann; second, what the laboratory worker thinks he has a right to demand of the clinician. What I have to say will be based on an experience with almost 25,000 Wassermanns, in connection with most of which we have had a reasonable amount of clinical data.

In the first place laboratory workers think the clinician should know enough about the immunological reaction to syphilis and enough about the technic of the Wassermann to know what kind of a reaction he is getting. The results of Wassermann tests depend very largely on the technic used. Incidentally, there are several modifications of the classical method which pass under the name of "Wassermann Reaction." The clinician should know enough about the immunological reaction in general to have a common sense viewpoint in the interpretation of a reliable reaction, and he should know enough about a reliable reaction to know that the reaction he is getting in any given case is reliable. As to the technic, he should know that the serologist uses at least two antigens, titrated as often as may be necessary, and properly controlled for anticomplimentary development; he should know that amboceptor and complement are being titrated immediately before the tests and that the reagents are not held over for subsequent tests without titration; that the complement is fresh and retitrated for each "set-up"; that controls on all the different factors, even to the iso-tonicity of the saline, are used.

In the second place, the serologist has a right to demand of the clinician that the specimen be delivered to him in such physical and chemical condition that a reliable reaction may be possible with reliable technic. The serologist has a right to demand that the blood be taken under sterile precautions into a chemically clean, bacteriologically sterile container. If a syringe is used it should be dry and sterile. The blood should preferably be taken shortly before meals and not from a patient who is in acute toxemia, either infectious or metabolic; the question of syphilis is not of paramount importance at such a time and the physico-chemical condition of the body fluids is decidedly abnormal then. The blood should be free from beginning hemolysis when the reaction is made. It is highly important that the instruments and containers used in securing and transporting the specimen be sterile, because bacterial contamination frequently makes a specimen anticomplementary; and they must be free from even a trace of acid or alkali because it has been shown experimentally that a trace of either one as minute as 1-10000 may materially affect the reaction. In brief, the serologist has a right to demand from the clinician a specimen of blood taken under sterile precautions and delivered in a chemically and bacteriologically sterile container, taken from a patient who is not in acute toxemia or recently recovered from an alcoholic debauch.

With the demands outlined in the two preceding paragraphs one might discuss briefly the ice box fixation as compared with the water bath fixation which Dr. Baldauf mentioned. The cold fixation method is coming into greater favor and most good laboratories are now using it. For several months we have employed both the warm water bath and the ice box methods of fixation, the former with cholesterinized antigens, properly titrated and controlled, the latter with crude alcoholic antigens, properly titrated and controlled. While we have not tabulated statistics to draw definite conclusions, we are firmly of the belief that the cholesterinized antigens with water bath fixations do give positive results more frequently than the other in early cases of syphilis and give continued positive reactions longer than the ice box method in treated cases as a rule. In other words, the reaction will remain positive with cholesterinized antigens and water bath fixation longer in treated cases than with crude alcoholic antigens in ice box fixation. On the other hand, in cerebrospinal syphilis, I believe there is no doubt that the ice box fixation will occasionally give a positive reaction when water bath fixation does not, particularly when the specimen is spinal fluid. In general the two methods will agree fairly closely. If we had been using the cholesterinized antigens in the ice box, the comparison between the two methods would be a little fairer. In the early days of the ice box fixation there was considerable prejudice against the use of cholesterinized antigens in the ice box, but more reliable serologists are now following this method and we are preparing to use both crude alcoholic and cholesterinized antigens in both methods of fixation. So far as the acetone insoluble antigen is concerned we have never been able to make one which was anywhere near so sensitive as the other two when the original Wassermann technic was used. With Noguchi's modification it is different, but this modification has generally been discarded.

Kolmer, who has done more than any other man perhaps to standardize the technic of comment fixation for syphilis, is about to publish a method in which a polyvalent antigen made of the lipoidal substance of different hearts will be used. Our experience has shown that different patients will react differently with different antigens. If Kolmer's polyvalent antigen will do what its name indicates, it may simplify the antigen part of the test to a considerable degree.

In conclusion may I say that any reliable serologist, who has had proper opportunity to correlate serological results with clinical evidence, is firmly of the belief that the positive Wassermann reaction is the most reliable single symptom of syphilis, and I believe that the great majority of syphilographers, who have studied the Wassermann reaction sufficiently to know when it is properly done and when it is not, have the same opinion in regard to its reliability. A strongly positive Wassermann in a reaction properly carried out and properly controlled, means syphilis, barring leprosy and yaws.

Curran Pope, Louisville: You have heard a great deal this morning about the treatment of syphilis. I think one of the most important things is the treatment of the patient who has syphilis. I believe every patient is a different problem and a different proposition, because no two patients are alike, and each one demands special consideration and handling. When a Wassermann test is made by a reliable serologist in the case of a fixation, it is a thing that is extremely valuable. If it is in conflict with all the clinical symptoms, and it is very slight, we have to weigh it and try it again. If it is negative in the presence of clinical symptoms, it does not with me count for a single thing. If I have clinically neurosyphilis I do not care what the laboratory says; I have clinically neurosyphilis still.

A few days ago I sent a specimen of a patient's blood to the laboratory, the patient presenting pathological pupils and neural symptoms. There was no question about the diagnosis, and the specimen was sent for confirmation, but the laboratory sent back a report of 50% positive. The patient refused to accept it, went to another labratory, and his blood was found to be negative. That is where the laboratory creates a great deal of embarrassment for the clinician and does distinct harm, because it prevents patients, unless you have sufficient control of them from taking the treatment they should.

Another thing: You will read paper after paper in the journals on this subject, and for the first time in a long time we heard Dr. Farbach say today that good general health is a splendid antisyphilitic measure. You hear it given in terms of good food, rest and exercise and tonics, which oftentimes mean nothing, but I am going to tell you that in my opinion there is no syphilitic in existence who would not be benefitted by hydrotherapy. There is nothing in the world that will build up the resistance, favor the elimination, and help the syphilitic like the administration of the so-called tonic—hydrotherapy, which means ultimately cold water. I think that there are few syphilitics who have any attention paid—and Dr. Farbach mentioned it—to the question of toxemia. It is just as important to get rid of that infection as it is to get rid of the spirochete.

I wish I had a good deal of time to discuss the question of neurosyphilis, but I want to take a moment to say that I support Dr. Farbach in what he has said, with the exception I do not believe there is practically anything in the Swift-Ellis treatment. I want to recommend a new combination of electric modalities. I think all tabetics and all paretics and any number of nuerosyphilitics would respond to this treatment. The brain and spinal cord of the individual affected is heated or "baked" first by means of a diathermic high frequency action; that is to say, a thermal penetration with the high frequency current, and this is followed by the electrolytic action upon the central nervous system of the galvanic current. The polar changes are governed and determined by the particular condition of the patient. I have seen patients clear up under this treatment as have others, and I am hoping that it may put another weapon in the field that will enable us to handle these very serious and very difficult cases.

In conclusion, let me say there are a lot of people—and the number is growing every day—who apparently in my own experience object seriously to spinal puncture. Particularly do we find that to be the case when we practice in the field of neurology and internal medicine.

J. Hancock, Louisville: It has been a rare treat to have heard this splendid symposium. I believe that there has hardly been a rash claim made by any of the gentlemen who have read papers in connection with the modern diagnosis and treatment of syphilis. I believe what they have said about the diagnosis and treatment of syphilis is concurred in by a large majority of the profession. In fact, I believe we can accept it all up to this time. We know that the last chapter in the treatment of syphilis has not yet been written; that there is much for us to understand yet. I agree heartily with Dr. Pope and Dr. Farbach when they say in the treatment of syphilis we must treat the individual. There is nothing known to medicine in remedial agents that we should not bring into our armamentarium to help the treatment of this disease. I believe we all admit that we have certain specific remedial agents at our command in treating this disease. The method of applying these remedial agencies is pretty definitely settled on. I believe we can accept the methods as presented by Dr. Brunet as being the most usually accepted ones for the treatment of syphilis in its various stages. The one thing I want particularly to address myself to is the early diagnosis of syphilis.

I am pleased to know that Dr. Palmer takes the view that he does regarding the early diagnosis of syphilis, and that favorable results probably can be obtained by the early intensive treatment of the disease. If the diagnosis of syphilis is made by the dark-field illumination or india ink stain before the Wassermann is positive, and intensive treatment is instituted, I feel safe in saying that more than 80 per cent of the cases will never have a positive Wassermann. I say that in view of the experience we have had and the period of time that has elapsed after we have had the opportunity of seeing such cases. Therefore, I think we are all agreed on that one point.

The next point is, that no man should regard himself so expert in clinical diagnosis or his observation of a lesion on the external genitalia so acute as to believe that he can with any degree of accuracy diagnose differentially between chancre and chancroid. I believe there is no man, however skilled he may be, who can differentiate between chancre and chancroid without making horrible mistakes. Therefore, I believe it would be a good dictum to regard all sores on the external genitalia as syphilis until proven otherwise by repeated dark-field illumination and a period of time under observation with negative Wasserman. This I think is imperative that we consider these conditions in this way. Just at this stage the diagnosis is very important for social reasons. I am sure we all regret we have not more time to discuss this very interesting subject because I know we are all enthusiastic about it.

I want to make this announcement before I close. We have twenty-four clinics scattered at convenient points over the state. These places are open to you. We have had these clinics established through the State Board of Health. As director of the Bureau of Venereal Diseases it is a pleasure to meet you, and anything that we can do with the State Board of Health to help you in this way we want to do it. The Red Manual on the Treatment of Venereal Diseases and its Diagnosis is available to any of you by writing to the State Board of Health. We want to supply it to you. We have enough copies to furnish you two a piece. We will give you one when you write for it, and we give you another when you lose a copy.

Leon L. Solomon, Louisville: It has been said that "Moral Law is Rarely in Conflict," and yet there is apparent conflict between the divine command, "Thou shalt not commit adultery," and the further order, "Thou shalt increase and multiply and become as numerous as the sands of the seashore."

The sex power, the sex function, the sex brain, in man, is so positive at times as to become actually compelling. Unfortunately for the male of the species, this is most frequently true of him. Less frequently, fortunately, by divine ordainment, is it true of the female.

I am particularly interested in that aspect of Dr. Brunet's paper, which deals with the sociologic or moral part of the subject.

My good friend, Jethra Hancock, succeeded me in the directorship of the Bureau of Venereal Diseases, under the State Board of Health of Kentucky. It was my pleasure to fill this office for a period of several years, during and after the war. He and others know my love for the bureau and my devotion to its purposes and ideals.

I believe the medical profession has always been and continues to be too lax in its interpretation of the moral aspect of syphilis. I had a concrete example under observation a few days ago. A gentlemen, past 70 years of age, a man of education and refinement, a virile, active, healthy, robust fellow, passed through an examination in our offices, with a score of 100 per sent of health to his credit. We could find absolutely nothing wrong with this man. His wife, in delicate health, he, thoroughly well and sexually virile, asked me for advice along sexual lines, relating that he craved indulgence, that he was subject to nocturnal emissions, when he did not regularly gratify himself, etc. I said to him what I thought should have been said by any serious physician who felt his responsibility. I told him that he had long since reached the age where he had a right to consider the subject of illicit intercourse without fear and trembling, that he had no actual need and requirement for contact with woman and must forego such privilege. To my great surprise and horror, seeking counsel elsewhere, he was advised by one of my reputable, erudite colleagues to indulge himself illicitly whenever his craving demanded.

The profession, for a long time, has had within its power and should have been enabled, through its knowledge of the sex question, to educate the public along this line, but education alone is wholly inadequate and insufficient. I think all of the educational work and all sorts and kinds of propaganda, started by the government to control and eradicate the sex diseases, will have salutary effect, but all will fail except that we succeed in planting deeply before the mind's eye the fear of consequences—the fear of what will likely happen following illicit sex contact. When I said to my patient: "This is what will happen to you, my friend, you will come into my office or you will go to the office of another doctor afflicted with a sex disease," his answer was that he "hoped to be able to avoid it." Failing to develop in him the germ of fear, despite his age—so impelling was his sex craving, I sought to touch a delicate subject with him—(he is a man with large fortune), when I told him that some cunning lawyer would bring suit against him for damages, through the efforts of a conspiring woman, and, between them, they would obtain a large slice of his money. This aroused him to a conception of the danger involved and I think has been sufficient to keep him away from the danger. Only through a fear of consequences, in my judgment, do a few men live lives of celibacy. It is this fear of consequences which we must emphasize as we educate the young men along sex lines. Abstinence, on the part of the male, is exceedingly difficult. His continence will only result provided in his education he is taught to fear gonorrhea, chancroid and chancre as one fears a mad dog.

J. A. Stucky, Lexington: I would like to emphasize two points from the eye, ear and nose and throat standpoint which have not been mentioned this morning. First, I am delighted to know there is an effort to standardize the Wassermann test. A few months ago we had a very embarrassing condition. There were three different reports on a case which was clinically syphilitic. One laboratory reported a negative Wassermann, and not being satisfied with this I had three specimens of blood sent to three other laboratories. One laboratory reported a positive Wassermann and another, the first one reported a negative Wassermann. Now there must be a reason for the difference in interpretation, and we clinicians need to help the laboratory man. It seems to me, if we are advancing, we must not be content until we get a standardized test.

Regarding the intravenous treatment of syphilis, I would caution its use where there is an acute involvement of the optic nerve or of the labyrinth. I believe it is best in these cases to rely on the old time treatment of mercury and iodide of potassium. While the intravenous injection treatment arrests the disease, I believe that our sheet-anchor, especiailly in my department, lies in the combined use of iodide and mercury.

I saw a young man a short time ago who was referred to me, and after examining him I reported back that the young man had beginning involvement of the optic nerve which looked like syphilis. Clinically, it was syphilitic. The physician reported the next day that it was syphilitic, and said he was going to give a good dose of neosalvarsan, but I said to him, I would be careful about giving an intravenous dose. In a week the young man was blind in one eye and is blind today. That may have been a coincidence. Oculists will differ about that, but a good many of us do not advocate intravenous treatment in an acute involvement.

I am sorry I cannot say anything about neurolabyrinthine deafness from syphilis, but there is a great deal of that to be found.

William E. Gardner, Louisville: I was asked to address myself to the paper of Dr. Farbach because, no doubt, those of us who are treating mental diseases have an opportunity to see the end results of the different forms of treatment of neurosyphilis.

I congratulate Dr. Farbach on the rationalism and conservatism of his paper and can endorse practically everything he has stated.

I am heartily in favor of the use of neoarsphenamin combined with mercurial injections or mercurial inunctions in the meningeal and vascular types of cerebral syphilis, or what was known formerly as cerebrospinal syphilis, where we still have early involvement of the nervous system, where there are cranial nerve involvements, headache, gummatous formation, with a large number of cells in the spinal fluid. In these cases we have an active inflammatory process existing. In other words, a process that is still more or less soluble. These inflammatory deposits respond to treatment very satisfactorily.

As to the treatment of the advanced degenerative conditions of syphilis of the nervous system, those conditions that we formerly called para-syphilitic, but which are really advanced tertiary lesions, I doubt if we accomplish any more by the use of neoarsphenamin than by mercurial injections or mercurial inunctions.

A few years ago, when the Swift-Ellis method of treatment of syphilis of the nervous system was called to our attention, I was rather sanguine, hoping we might accomplish a good deal in the treatment of tabes and paresis, but some of the end results in those cases and a rather close study of the literature has shown that the Swift-Ellis method is not popular any longer, so far as the treatment of paresis is concerned. I have seen cases grow rapidly worse by the use of salvarsanized serum. I believe that these advanced cases of neuro-syphilis do much better under institutional care, as a rule, and Dr. Pope has spoken of the importance of hydroptherapy and electricity in these cases. It is perhaps not this treatment so much as the regular routine and control we have over patients in the institution that does most good. The general hygienic treatment a patient receives, together with tonic medication and rest that are employed is equally as important as hydrotherapy and electricity. I grant you I have not had the broad experience Dr. Pope has had with these measures that he speaks of, but I am willing to admit the great good that may be accomplished by the control and rest which these patients receive in an institution. This is particularly true of any case of paresis where the patient has grandiose delusions and is moving about from one place to another. This patient may be still at large and be permitted to go to his home, going back and forth to the doctor's office for treatment. He is not sleeping well; he is lowering his resistance, and if such a patient is put in an institution and treated by syphilographers at the outset, I am sure those present will bear me out in saying that, as a rule, he will respond to treatment better in an institution. Now and then there is no question but what some individuals will develop neuro-syphilis in spite of any form of treatment, no matter how intensive, or how early the treatment is instituted. Such cases will develop neuro-syphilis while others will not do so. Certain individuals have lowered resistance; they are usually unstable; they have a psychoneurotic tendency; they are susceptible to infections of any sort. This same type of individual is much more prone to develop neuro-syphilis, no matter what sort of treatment may be used.

So far as the ill-defined types of neuro-syphilis are concerned, I believe some of these cases are not organic neuro-syphilitic conditions, but are functional nervous diseases with the coincidence of syphilis. Just as a man with syphilis may have pneumonia or typhoid fever and recover from it, so he may have latent syphilis and develop a confusional psychosis or dementia precox and recover, or have a remission without antisyphilitic treatment. If treatment is instituted in such cases it may bring about a more favorable result than one anticipates and is sometimes misleading. After all, in these advanced involvements of syphilis of the nervous system, we do not know, perhaps, how much is actually accomplished by antisyphilitic measures in any particular case.

H. J. Farbach, Louisville (closing): Speaking of the laboratory as an aid to the general practitioner, such a laboratory must, primarily, render a practical service. Talking about dark-field examinations being the thing for such a service is purely visionary. You can count on the fingers of your two hands the laboratories in this country that give a practical, satisfactory dark-field service even in a limited way.

If it is the desire of the State Board of Health to render aid in making an early diagnosis of a suspected sore it must have a simple plan of getting the specimen to the state laboratory. This will never be possible as long as you demand a dark-field test. On the other hand, it can render a valuable service by the india ink method.

This method requires very little apparatus or special training to prepare a specimen, and if the doctor has not the microscope or training to make his own diagnosis, he has a specimen that keeps well and can be easily sent to a laboratory.

The question of error in a diagnosis made from an india ink slide by the average laboratory worker, I think, is less than when the moist specimen is used. From a social work standpoint, the india ink slide offers the only practical method of helping the average doctor, city or country, in making an early diagnosis.

Dr. Stucky spoke of his experience with laboratories. There is a movement, well along, to standardize the Wassermann technic. This should eliminate the confusion he speaks of. However, it seems to me this continual striving on the part of some investigators to make this test more sensitive, give more positives, is really clouding and belittling the clinical value of the test. The Wassermann is simply one symptom of syphilis, and a diagnosis should never be made on any one symptom. "The laboratory tail should never wag the clinical dog."

The proper treatment of syphilis should be simple. The primary object being to rapidly clean up the circulation and general vascular tissues, then to continue medication until the organisms in the vascular tissues and spaces are destroyed. We know we get positive Wassermanns before the secondaries appear. Some investigators have shown the spirochete in tissues far removed from the chancre in the first few days of the infection. This means we have a generalized infection long before the secondaries appear. Syphilis remains a local infection for a very short time, it is an infection that has little if any immune producing qualities. What then can you gain by delaying treatment until you have a general eruption? It may even confuse the diagnosis by its failure to appear. Many neuro-syphilitics give a history of mild or no secondaries.

The ideal treatment is to clean up the generalized infection with arsenicals as rapidly as the welfare of the patient permits, and then depend on the mercurials for the ultimate eradication of the infection. In this way you prevent permanent injury by the spirochetes to the vascular system, essential organs and nerve tissue.

If an early diagnosis is made, proper treatment, controlled by laboratory tests, instituted and continued you minimize the possibility of a neuro-syphilis. Dismiss no case without a spinal puncture and make one on every patient that shows nerve involvement of any sort.

There is one thing that has always impressed me and that is the majority of neurologists are not enthusiastic about intra-spinous treatment? I believe this is because they do not see the cases of tabes that are benefited by this treatment, they having received their treatment most often from the syphilographer, but do see those that are not improved or who for some reason discontinue the treatment and, too, they see more cases of paresis, too far advanced to expect a cure.

But in my experience even in advanced paresis intraspinous treatment favorably modifies the course and progress even if it does not promise a cure.

W. M. Brunet, New York City (closing on his part): I want to say that Dr. Palmer is a very brave man. There is one other man on earth that I know of who sticks out for the treatment of syphilis with mercury; he is a Frenchman, and he refuses to give "the damn German poison.' I do not know whether that is Dr. Palmer's idea or not.

We can no more do without the combined treatment of syphilis with arsphenamine and mercury than we can do without antitoxin in diphtheria. I think that clinical observation extending over a period of six or eight years with the intensive method of treatment has definitely proven that point. We know that mercury in vitro is an active spirillicide. What it does in vivo is a moot question. Personally, I believe it has some spirillicidal effect, but the greatest action we get from it is the general toning up of the system. On the other hand, we know that arsphenamine is not a spirillicide in vitro, but it is a most active spirillicide in vivo, and this is a well demonstrated fact, for, with two or three doses of arsphenamine in a case with active lesion in the mouth, mucous patches, or a primary lesion on the genitalia, chancre, that are swarming with spirochetes we can render these lesions non-infective as if by magic. This cannot be done with mercury except in the rarest of cases and only by giving it over a long period of time. I would like to ask Dr. Palmer one question. Why is it we see so many old cases of syphilis with involvement of the cerebro-spinal system following the older methods of treatment with mercurials alone? We do see a number of cases of nervous involvement following any syphilitic infection, whether treated with the mercurials or arsphenamines, but by far the largest number of cases with nervous involvement have had only treatment with mercury. The summum bonum of the treatment of syphilis is the use of mercury and the arsphemanines combined.

Dr. Pope brought out the question of a negative Wassermann reaction and said that it meant nothing. I want to stress that point, and repeat that it means absolutely nothing. Do not say that a patient is not infected with syphilis if he has a negative Wassermann, and be wary about condemning anyone on a weakly positive reaction, but usually a two plus Wassermann reaction will indict a laborer on the streets; a three plus will indict a medical man, but it will take a four plus to indict a preacher. (Laughter.) Seriously, if you find a negative Wassermann reastion it means nothing. And I would call your attention to the importance of a thorough physical examination in every case in which syphilis is suspected. We cannot escape the responsibility resting upon us on this point, and the reason we do not find more syphilis, particularly of the nervous system, is because we do not examine our cases with care. Stokes of the Mayo clinic has shown that it is possible to make a diagnosis of syphilis of the cerebrospinal system by physical examination alone in upwards of 35% in a group of cases without any laboratory aid whatever. Examine your cases and whether they have tuberculosis, myocarditis or plain rheumatism examine them carefully and think of syphilis.

Dr. Solomon brought out a point with which I do not agree, namely, that an appeal to fear was a deterrent in venereal infections. The case that he cited, I should say, is a most rare one. A man who has reached the virile age of three score and ten years, and wants to indulge in illicit sexual intercourse, knowing the dangers of venereal infection therefrom, saying nothing about the moral degredation, is unteachable. I should say that that man's brain is atrophied. You do not reach such a man, Dr. Solomon, through fear of venereal disease; you reach him through fear of some other kind, blackmail, for instance; for some soiled dove of the street might lure this man to some place and cohabit with him and then blackmail him, but the fear of venereal disease will be no deterrent. It is the thought of some woman getting his money that he is afraid of.

If we are going to prevent venereal disease in the younger generation, we have got to teach a positive constructive idealism to our growing children. We cannot appeal to fear. Children, as a rule, know no fear, and the man who stirs up the question of fear in a young man or woman as a preventive of venereal disease is not worthy of the name of man. (Applause.)

Dr. Stucky brought out a point in connection with treatment of involvement of the optic nerve. If the doctor who treated that patient had been very careful and given a small dose of salvarsan, the patient would no doubt have had only a transitory blindness, due to the reaction in the nerve structure. If he had repeated the dose in a few days the temporary blindness would have cleared up, no doubt. The men who give large doses of arsphenamine produce maximal reactions, and that is one of the first things Ehrlich brought out in his publication on the use of salvarsan, to be careful of the administration of the drug in any acute condition, particularly involvement of the nerves of the special sense. He did not give it in pregnancy, but we are obtaining brilliant results today in pregnant women. I thank you.

Familial Spina Bifida.—In the course of a general discussion of this subject Pybus refers to four children in one family who had some degree of spinal defect. The eldest died at the age of 18 months with spina bifida, the type of which is unknown, and with hydrocephalus. The second child, now aged 10 years, has a spinal bifida occulta, indicated by a scar and depression in the upper dorsal region and by slight scoliosis. The third child has a large meningomyelocele in the sacral region. This was operated on with excellent results. The patient is quite well and without deformity, the only symptom present being that she is perhaps unable to hold her urine as long as usual. The fourth and last member of the family has the least defect, which is an exaggerated postanal dimple.

TREATMENT OF HERNIA.*

By Guy P. Grigsby, Louisville.

When one realizes the great number of people who suffer from hernia, and the few who seek or at least obtain permanent relief, it causes no little wonder on the part of those of us who are convinced of the efficacy of operative treatment. There must be some reason for this: is it due to ignorance or fear of the operation by the laity? Is this engendered by the indifference, first of the practitioner, and second of failures of the ill-informed operator? The skepticism occasioned by one failure will by far outweigh the confidence gained by a hundred successful operations. It, therefore, behooves those of us who are sincere in our convictions, and are backed by the results in competent hands that brook no contention, to first convince the "Doubting Thomases" in our own ranks as to the merits of the operation, that they may in turn give advice so sincere and convincing to their patients that many rather than a few will seek the benefits offered by surgery.

There are various stimuli which incite us to write on certain subjects. It may be an unusual case or many cases from which we draw conclusions. I have chosen this subject because on several occasions I have advised persons with hernia to be operated upon, and have met them a few days later wearing a self-satified smile; inquiry developed the fact that some drug clerk had fitted them with trusses, at the same time assuring them of a cure and the futility and danger of an operation. Often the patient has consulted the family doctor, one of the indifferent kind who may suggest the advisability of an operation, but certainly would not dream of urging it; the result is that the drug clerk or the instrument maker gets the patient just the same, the only difference being that in the later case it is with the indorsement of the doctor.

We are all creatures of habit, and as physicians we are especially prone to adhere to routine methods of treating certain conditions and maladies. We have all doubtless experienced the difficulty and reluctance with which we discard an old favorite method that has been more or less satisfactory for some newer one that apparently offers far better results. This fact is clearly shown, if I may so term it, by the "truss habit" in the treatment of hernia; and if by this paper I can enlist your efforts toward elimination of the truss (except in certain suitable cases) I shall feel that it has served its purpose well.

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*Read before the Louisville Medico-Chirurgical Society.

I cannot help but condemn the indiscriminate application of a truss upon every otherwise healthy individual who is suffering from a hernia. A truss is analogous to an opiate; it relieves temporarily, but does not cure; and once the truss habit is formed there is little hope that the individual will ever submit to an operation—not realizing that the time of "golden opportunity" is rapidly passing nor the many dangers of strangulation he is constantly facing. When you place a truss upon an unsuitable case of hernia, you not only do the individual an injustice, but yourself and the profession harm, because many such patients will invariably drift into the hands of the quick-cure rupture quacks..

I have taken occasion to investigate the various concerns and individuals advertising sure cures for rupture. Needless to say the number was a revelation to me, and their methods of treatment were equally amazing and unique,—trusses, salves, and even Christian Science being vaunted as sure cures. I wrote to several who were liberal advertisers and therefore apparently the most successful. Their plan was to send a salve or liquid of wonderful strength and curative power; also a pamphlet explaining what hernia was and why their particular appliance (usually some form of truss) was the only safe and certain cure. It was interesting to note that not one failed to condemn and decry the surgeon and his horrible knife. There may perhaps some doubt still linger in the minds of the older practitioners as to the success of operations due to many failures and relapses incident to earlier operative procedures. For these i can only hope that they will take time and occasion to inform themselves of the true facts.

May I briefly outline the use of the truss and its limitations? It is of invaluable aid in the treatment of hernia in children under five years, and for the relief of patients over sixty years of age, or those who have a more serious ailment which makes the hernia a minor consideration. The question of how large a percentage of hernias in children are cured by mechanical means is an important one. It has been falsely stated that all hernias in children could be cured by the truss. This assumption was shown to be untrue by Bull and Coley in a study of fifteen thousand cases in adults, a large percentage giving a history of hernia in infancy or childhood; it is probable that many more really had hernia in infancy which was long forgotten.

Personally, I believe that under the age of four years a considerable number of inguinal hernias and nearly all umbilical hernias can be cured by truss treatment, hence the advisability of giving mechanical measures a fair trial before resorting to operation. The truss must be worn for several years. It must make accurate pressure over the hernial ring and be removed only for the purpose of cleansing during which descent of the hernial contents is prevented by the thumb of the mother or nurse who has been previously instructed. The truss should be applied just as soon as the hernia is discovered, and it is not an unwise procedure for the physician to make frequent examinations for this condition in early infancy. Umbilical hernia is frequent in infancy and early childhood and the results are even more favorable than in the inguinal variety when treated by means of a button and adhesive strap.

In selecting a suitable truss for application in adults the physician should study each case carefully until he understands clearly what he desires to accomplish. The chief aim is to keep a small, well-fitting pad directly over the internal ring so that the orifice of the canal is closed, thereby obliterating the communication with the abdominal cavity. The truss should be adjusted perfectly to each individual patient; it should lie above the glutei muscle so that their action in walking will not disturb the position of the truss and its pad; it should press backward and upward but never downward on the spine of the pubis; the pad should be oval in shape and not too conical, otherwise it may be forced into the ring which in time will gradually dilate the opening. My personal plan is to take the patient to a truss maker and fit the truss best suited to the indiviual case.

It is well to bear in mind that the wearer of a truss is more or less a cripple, that he is generally debarred from army, navy, police and fire department service, that he is an undesirable insurance risk, and that strangulation is always a possibility. In children over five or six years of age there is practically no assurance of a cure by means of a truss, no matter how faithfully it has been used nor how scientifically it may have been fitted, because it has been shown, as previously mentioned, that many of these hernias though apparently cured recur in later life. Now let us compare this with the radical or operative cure of hernia. I know of no operation by which I can so safely promise the patient a cure as in that of hernia. A recent communication from Dr. Coley contains the following statistics:

"From December, 1890, to January, 1918, six thousand and ninety operations for the different varieties of hernia have been performed at the Hospital for the Ruptured and Crippled. The great majority of these operations were performed by a small group of surgeons (Drs. Bull, Coley, Walker, Downes and Hoguet), a small number by the assistant surgeons or house surgeons under our direct supervision.

	Cases.	Recurrences.	Per Cent.
Inguinal hernia in males (obliques)	4420	25	0.57
Inguinal hernia in females (children)	690	1	0.15
Inguinal hernia in adults	369	13	3.5
Direct hernia	33		
Direct hernia in adults (females)	13	1	7.7
Femoral hernia in children	69		
Femoral hernia in adults	182	8	4.4

(Four of these recurrences were in cases in which the operation was done for recurrent hernia, the primary operation having been done by other surgeons. They should therefore not really be included.)

Umbilical hernia in children	58		
Umbilical hernia in adults	104	3	2.8
Ventral hernia in children	24		
Ventral hernia in adults	81	12	14.8

(Most of these large ventral hernias were in stout women following old celiotomies.)

Epigastric hernia	18	1	5.5
Lumbar hernia	1		

In three hundred and thirty-four cases the operation was for undescended or maldescended testis. In practically all cases (three or four exceptions) there was a hernia, either actual or potential, i. e., an open funicular sac communicating with the tunica vaginalis. It is noteworthy that not a single relapse has been observed in these three hundred and thirty-four cases of operation for undescended testis.''

I shall take the privilege of appending to this list a brief survey of eighty-five cases that I have operated upon since January, 1914. In this series there were six umbilical hernias, three ventral, three femoral, seventy seven indirect inguinal, and six direct inguinal. There were four strangulated hernias, three inguinal and one femoral. Of this number I have been able to trace sixty-five, either having seen the patients or have been informed of their condition by letter.

There has been only one recurrence. This was in a man aged forty-three who had a complicated inguinal hernia the urinary bladder constituting a portion of the sac wall which rendered proper closure difficult. Three weeks after the operation he attempted to play golf and so hurt himself that it was necessary for him to be carried home. Unquestionably this was the cause of the recurrence; it is only slight, a small portion of the bladder bulging at the lower end of the incision. This man served nearly two years in the army, he was examined on numerous occasions and reports that this slight recurrence was not discovered at any time by the doctors. As there has been no increase in its size during the past two or three years, I have advised against another operation.

There has been one death in this series, the patient having a large umbilical hernia of long duration. The hernial contents could only be replaced in the abdominal cavity with great difficulty and some trauma. After the fascia was overlapped the sutures were under considerable tension. The patient developed post-operative anuria and died on the fourth day.

Two patients with undescended testicle were operated upon, one being fourteen and the other twenty-two years of age. In both the testicles was successfully brought into the scrotum after division of some of the spermatic structures according to Bevan's suggestion. In the boy of fourteen there has been atrophy of the testicle. In the other case after three years the testicle feels normal in size and consistency. The patient says his sexual capacity has markedly improved.

In eight cases there were vescial complications, the bladder being either in the sac or forming a part of the sac wall. Careful observance of the sac before opening it revealed the complication and the bladder was not injured.

As regards the hernial contents: One case was of especial interest. Practically all of the cecum, the appendix, a portion of the ileum, the right tube and the ovary were found in the sac.

This series of operative cases does not include one hundred and twenty-two operated upon during my military service. Practically all of these latter patients were operated upon at the Base Hospitals in Camps Sheridan and Lee during April, May and June, 1918. I have been unable to get later reports on these cases.

In operations for hernia various modifications in technique have been suggested, but none of them offer any decided advantage over the plan originally devised by Bassini. The operative procedure in all of my cases has been practically the same. In a few instances slight changes have been made in the usual technique. In direct inguinal hernia an incision two and a half to three and a half inches long is made parallel to Poupart's ligament and about one-half inch above it, so that the lower end of the incision comes over the center of the external ring. The aponeurosis is split in line with the skin incision, care being observed not to injure the ileo-inguinal nerve which lies directly beneath it upon the muscle. The aponeurosis is dissected well backward on the inner side toward the rectus muscle, giving full exposure of the internal oblique muscle. On the outer side the aponeurosis is dissected until Poupart's ligament is exposed to the pubic bone. The sac and cremaster muscle just over the canal and just above the ring are seized with thumb forceps and elevated, the muscle fibers being pushed aside with blunt-pointed curved scissors. This exposes the white tissue of the sac which is seized with a hemostat, then with a sponge the sac is quickly freed from the cremaster muscle. The next step is to incise the layer of infundibuliform fascia which surrounds the sac and cord in common. The clamp is then changed so that it grasps the exposed sac over its anterior margin, then with thumb and forefinger of the right hand and a piece of gauze the cord is separated from the sac until the latter occupies a position above the forefinger of the of the left hand and the cord below. The sac is then cautiously opened to determine whether it is empty or contains omentum or intestine. If the sac is free of contents, and the bladder is not included in its walls, it is cut across. If the lower end of the sac is densely adherent to cord structures, only a portion of it need be removed and it is left open; otherwise it is dissected away. The proximal end of the sac is dissected upward until it widens into the peritoneal cavity; it is then transfixed by suture and ligated. If the cord is to be transplanted it is held firmly by means of a tape, a curved needle with kangaroo tendon or chromic catgut is introduced through the upper portion of the internal oblique muscle, the suture is then passed outward through the cremaster and into the shelving edge of Poupart's ligament and tied. The second suture is placed in exactly the same way one half inch below. Four sutures are usually required in adults. The fourth is perhaps the most important suture of the entire procedure, and is inserted in a special way, as follows: The external oblique is reflected inward, and the ileo-inguinal which until that time has been held on the inner side by retractor, is now released and allowed to assume its normal place. The reflected portion of the external oblique, about one-half inch above its junction with the conjoined tendon, is "picked up" with a sharp needle; the needle then crosses over the nerve and secures the outer portion of the conjoined tendon; then crosses beneath the cord and enters the lower portion of Poupart's ligament close to its attachment to the pubic spine. The tighter the suture is drawn the more room there is for the underlying nerve which must never be compressed. A great deal of the neuralgic pain which often follows hernia operations is due to this nerve having been caught in the suture. When this suture is tied the canal is completely closed to the pubic bone. This procedure was originally suggested by Coley. The aponeurosis is then closed from above downward by means of a continuous suture of catgut, leaving sufficient space at the lower end for a new external ring through which the cord emerges. In those cases where the muscles are poorly developed and do not afford satisfactory closure, the aponeurosis of the external oblique may be sutured beneath the cord to Poupart's ligament, allowing the cord to be placed just beneath the superficial fascia and the skin. In some instances transplantation of the rectus muscle has been necessary to secure proper closure.

In direct hernia the aponeurosis of the external oblique is always sutured to Poupart's ligament, otherwise the operation is the same as has been outlined. The cord should always be transplanted in direct hernia. A few of the cases mentioned have been operated upon by Ferguson's modification, which is identical with the method described, except the sutures in the muscular structures are placed over the cord instead of the cord being placed above them.

Femoral hernias have been operated upon by the purse string method after thorough removal of overlying fat which in many cases completely surrounds the sac and makes it somewhat difficult to find it. Thorough freeing of the sac enables it to be brought down so that it can be ligated beyond the neck. The femoral canal is then closed by a purse string of chromic catgut, using a curved needle which is first passed through the inner portion of Poupart's ligament or roof of the canal, then downward taking firm hold on the pectineal fascia and muscle, then outward through the fascia overlying the femoral vein, and finally upward emerging through the roof of the canal about a quarter inch distant from the point of entrance. When this suture is tied the femoral opening is completely obliterated.

Umbilical hernias have been operated upon by ovelapping the fascia as first described by Mayo.

Many hundreds of patients were operated upon for hernia during the war, and the successful results obtained in these cases should prove an incentive for many who are suffering from hernia to seek relief by modern surgical procedures.

"Now it would seem to me that when a patient comes to you with a hernia that he has the right to know from you these facts. Tell him that a truss offers practically no hope for a cure, an evarlasting semidisability and he is consantly running the danger of strangulation with its high mortality. That operation affords him over ninety-five chances out of one hundred for a permanent cure; that it means a total disability for two weeks, a semi-disability for two weeks and operative risk so slight that it is hardly worth considering. There is an natural skepticism and antagonism that is borne by the public against operations that can only be overcome by a plain statement of facts by the physician that will prove to him that the operation is the wisest course both as to cost and to health. Now, I am convinced that the laity in general do not know these facts and they have a right to know them from you. If you are as firmly convinced of the merits of the operation as I am myself, you will not only advise but urge that they submit to it."

DISCUSSION:

J. G. Sherrill: Dr. Grigsby has given us a complete resume of the accepted treatment of hernia at the present time. As he says, in no class of surgery can more brilliant results be promised the patient. Probably all the disfavor of the operation rests upon the results of treatment years before the aseptic period of surgery when it was difficult to obtain healing and therefore recurrence was frequent.

Unless the patient is extremely old and span of life therefore short, unless he has some intercurrent disease which is of greater import than his hernia, or there is some particular reason as stated by Dr. Grigsby, I think operation should be recommended in every case where the patient is over four or five years of age. Under that age the patient may receive sufficient benefit to go through life, at least for a number of years, without recurrence, the hernia being relieved by pressure of a properly fitted truss, but unfortunately that it is not true in every instance.

Quite recently a man, aged seventy-four, came to me with inguinal hernia which had developed suddenly and asked my opinion about an operation. I told him frankly that there were two plans of treatment, one the application of a truss, the other radical surgery, and because of his age I rather favored the former plan, but he would have to decide the question. He immediately said, I am going to be operated upon."

However, his children were very much perturbed about it and finally persuaded him to have a truss applied. After about ten days employment of the truss he discarded it and returned to me for an operation. He was operated upon and thus far has progressed favorably. Even at the age of seventy-four, if a man is in good health and there are no contraindications, if he desires to be operated upon I do not see any reason for declining.

In another case a man of seventy-four was subjected to operation for hernia with satisfactory results. This man was very much embarrassed by the use of an artificial leg, the hernia interfered with movement and caused him considerable pain, therefore operation was decided upon. In this instance I used the local method of anesthesia because it entails less risk. It has, however, this disadvantage, infiltrating the issues makes the operation a little more prolonged, and healing is not always as perfect as under general anesthesia. In one or two instances coming indirectly to my notice typical phlebitis has developed after local anesthesia for hernia operations. Whether injection of the local anesthetic caused some damage to the veins, or whether slight infection resulted which caused the phlebitis, really makes little difference. Taking all things into consideration, if there are no contraindications, to general anesthesia, I believe the patient will do much better, it is much easier for the surgeon, and the results are better if the operation is under a general anesthestic, although it can be satisfactorily and safely done under local anesthesia. As a local anesthetic I prefer one-fourth of one per cent novocaine. If this is properly injected anesthesia is quite satisfactory, the operation should be completed in competent hands in a very short time, and the result should be good. In the army operations for hernia were sometimes preformed within a few minutes, but I fear in some of these instances final good results were sacrificed for the sake of speed. I believe it is much better and safer for the patient to take more time in exposure of the sac and in suturing the wound. In competent hands herniotomy is a safe procedure and the final results are uniformly good.

I believe most of the cases of phlebitis seen following pelvic surgery are the result of trauma to the veins during the operation in addition to minor infection which ocurrs at the time. Excessive handling of the tissues is prone to cause phlebitis, and I believe instead of using a sponge in dissecting the tissues away from the cord in operations for hernia, the better plan is to use sharp knife dissection. By this plan there is less likelihood of thrombosis and phlebitis. Moreover, where the knife is used the surgeon can see immediately whether there is going to be any hemorrhage. Where the sponge is used there is bleeding sometimes as late as twenty-four hours after the operation.

L. W. Frank: I agree with practically everything that has been said by the essayist. It is surprising at the Children's Hospital the number of infants from three months to three years of age who are sent in for operation because of small umbilical hernia. In most instances the hernia is very small, the opening not admitting the tip of the finger. During the last eight months I do not know how many such cases have been admitted, none of which have I operated upon, but preferred to treat them by the adhesive strip and button method.

I have seen quite a number of children with large inguinal hernia where the ring would admit two fingers and where I thought the result would be better by operation than the application of a truss. These patients were operated upon, but where the hernia is small I think truss treatment may be successful and is worth a trial. Where the opening is large and the sac contains a portion of the intenstine the application of a truss is unsafe, the danger of subsequent adhesions and strangulation being greater than the risk of operation.

In children herniotomy is much simpler than in the adult. All one has to do in the child is to isolate and excise the sac, ligate the stump, properly place two or three sutures, and the hernial opening is closed. In the adult there is no question, unless contraindicated by some graver disease, but that the hernia should be repaired surgically when diagnosed.

There is no doubt that unfavorable results secured by incompetent operators has contributed largely in bringing surgery for the relief of hernia into disrepute. I am aware of several instances where recurrence of the hernia was due to improper methods of operating. While herniotomy is relatively a simple procedure in competent hands, in many instances operations have been performed by incompetent surgeons and the results have not been successful.

Occupation of the individual has much to do with recurrence of hernia after operation. Personally I have seen only one recurrence and that was in a fleshy man who was called upon to do heavy work, consequently I now ask every patient the character of work he does before operating. A heavy man who is on his feet constantly, operated upon for a big hernia, is much more apt to have a recurrence than a slender man or one who is doing clerical work. These things must be carefully considered in making a prognosis.

In large hernia, where the opening into the abdomen is of great size, in addition to the Bassini technique I have found it of advantage to practice the so-called overlapping method; that is, the upper layer of fascia of the external oblique is brought downward and sutured to Poupart's ligament, and the lower layer of the fascia of the external oblique is brought upward and overlapped, which gives three thicknesses over the hernial opening. This plan was successfully followed in a case recently where a man had a very large hernia. The sac was so large it could not be ligated and had to be sutured. In such cases I think the overlapping method is advisable. In smaller hernia, however, it is unnecessary.

Charles Farmer: I agree with the essayist and the other gentlemen who have spoken. Unless there is some valid contraindication every hernia should be operated upon. As has been stated, a man with hernia remains practically a cripple until his hernia is repaired surgically.

One point in the technique which I think Dr. Grigsby mentioned should be emphasized; that is the hernial sac should be ligated as high as possible. If this is not done there remains a small funnel-shaped depression into which the intestine descends and there is a recurrence of the hernia.

I also wish to mention a point in the technique of the operation for umbilical hernia: A few days ago a negress was admitted to the Louisville City Hospital with a small umbilical hernia; she also had bilateral salpingitis. An incision was first made between the umbilicus and pubes, and after removing the infected tubes the incision was extended upward through the umbilicus, the peritoneum and fascia were carefully dissected free, and the opening closed in three layers. Where the umbilical hernia is small I believe this is a very good plan. In large umbilical hernia the Mayo procedure should be followed.

J. R. Morrison: I wish to congratulate Dr. Grigsby on his "maiden effort" before this society. He has certainly given us a very complete paper and one remarkably well presented.

As to the use of a truss in the hernia of children: For about ten years I have been associated with the Babies' Milk Fund, and in that work exmained many children, the majority of them were poorly nourished, and a great number of umbilical herniae were discovered. They were treated by means of adhesive strips, and so far as I can recall in only four or five instances did we fail to obtain a cure. We saw great numbers of children with umbilical herniae, many of them negro children with syphilis and poorly nourished. With mercury and adhesive strip the most of them were cured. Some of them were operated upon. If I remember correctly during my service in the Hospital for the Ruptured and Crippled in New York, they used a truss on all inguinal herniae in children under the age of four years, and had good results.

Dr. Grigsby "takes a crack" at the general practitioner, and perhaps his remarks are justified. It has been my custom when a man comes to me with hernia to tell him he ought to be operated upon. The majority of them have done so, and as the results have been almost uniformly successful, they have been very grateful for my advice. People with hernia who decline to be operated upon can always find some doctor or drug clerk or somebody who will put a truss on them.

A competent surgeon in operating for hernia can usually assure his patient of a good result; but there may be so-called surgeons who undertake to do work of this kind who are in no wise competent, and, of course, their results are unsatisfactory. There are many alleged surgeons to whom this criticism will apply.

I would like to ask what if anything can be done surgically for the relief of elderly men who have large herniae and considerable intestine in the scrotum. We have all seen such cases and I have wondered if there was really anything that could be done for them.

Henry Enos Tuley: I wish to speak principally of umbilical herniae in children under one year of age. I have seen a great many of these and have not seen one that we were unable to cure by use of the adhesive strip. There is some little art in the application of the adhesive strip, and I do not advocate the use of the coin or button. I believe infolding of the hernia and drawing the skin together over the muscle on either side is much more effective than the use of a button. It is important to make the adhesive strip long enough; it should extend well out to the side about under the line of the nipple, to get the support of the recti muscles. This cannot be done if the adhesive strip is too short.

One of the greatest arguments in favor of operation for the hernia of adults is prevention of the possibility of strangulation. I have never realized that strangulated hernia could be so frequent as since I have been superintendent of the Louisville City Hospital. We have had a great many of them in the last four years and the frequency with which strangulation can occur in these cases to me is very surprising. Many of them have become strangulated through the use of a truss. In some instances resection of the intestine became necessary to effect a cure.

Guy P. Grigsby (closing): The question of trauma, as mentioned by Dr. Sherrill, is very important in connection with the operation for hernia. I have recently inflicted very much less trauma than formerly in dissecting the sac free from the cord due to change in technique. Dissection should be made with the greatest care and gentleness to avoid undue damage to the tissues.

As to Dr. Morrison's question about herniae in elderly persons where the protrusion has attained considerable size: If the hernial contents can be reduced, consultation with a first class truss maker, the taking of accurate measurements and the making and application of a truss with a pad sufficiently large to completely cover the opening, usually a truss of the so-called French type, is about the only treatment to be recommended. A truss of this kind properly applied will afford temporary relief.

As to hernia treated by ill-informed operators: Unquestionably to this fact may be attributed subsequent recurrence of the hernia in a great many instances. Incompetent surgeons shohld not be permitted to operate upon patients for hernia, nor should they be allowed to operate for any other variety of pathology as a matter of fact. However, these are matters which cannot always be regulated.

The point made by Dr. Tuley in regard to the treatment of umbilical hernia in young children is well taken. The infolding method is probably just as effective as the use of the button. Having the adhesive strip long enough to secure proper support is a very important item. However, the majority of herniae of the umbilical type in young children can be cured by almost any method now in vogue provided treatment is continued for a sufficient length of time. These children should not be allowed to go about without any support. The adhesive strip probably does the most good, the coin or button being non-essential.

As to operating upon children under four years of age for the cure of hernia: Opinions in regard to this vary considerably and it oftentimes becomes a question of surgical judgment. If the child is strong and healthy and has a large hernia, I can see no reason why he should not be operated upon and be saved the trouble of wearing a truss for four or five years.

The whole question of the treatment of hernia, as I look upon it, resolves itself in a matter of mechanics and common sense. The technique of the operation has to be varied in certain instances to meet the indications. I have not always followed the Bassini technique and really have no partcular set rules for operation. The tissues are used to the best advantage in effecting closure. I have frequently utilized the procedure outlined by Dr. Frank and have found it very effective.

Quite recently I have operated upon two children, eleven and twelve months old respectively, for strangulated hernia. In both cases the operation was entirely successful. It is remarkable how well young children withstand this type of operation. I also operated upon a young child three years ago for an umbilical hernia with a very large opening. I considered it distinctly unwise to attempt truss treatment in this case on account of the large hernial opening. This child also had an easy convalescence with permanent cure of the hernia.

SOME CONSIDERATIONS OF PYELITIS.*

By E. Owsley Grant, Louisville.

Pyelitis is a generic name given in reality to infection of the lining memebrane of the pelvis and the calyces of the kidneys. Pyelitis alone probably never occurs, as there is always some infection of the cortical structure of the kidney and both the acute and chronic forms are more properly termed "pyelonephritis," but most marked lesions are in the pelvis at first, and so recent is this differentiation from other acute suppurative conditions of the kidney that even in modern textbooks it is rarely considered as an entity. It is to be distinguished only from nephritis in the sense that it is true pus producing inflammation of the epithelial surface, and that the factors which give rise to its production concentrate their efforts in the more distal portions of the kidney. With the exception of tuberculosis and syphilis, practically all the destructive infectious lesions of the kidney have their beginnings in this type of infection, and it is one of the progenitors of pyonephrosis. That portion of the renal anatomy which is most susceptible to infection by pyogenic organisms, the submucosa, is attacked first, and if the process is not stopped spontaneously or by medical means it has always the potentiality of becoming a grave destructive lesion.

Pyelitis is so protean in its manifestations that clinically at the present time it seems impossible to assert positively its mode of progress and process of infection. Pathologically the kidneys are seen only after severe destruction and the mode of onset is likewise here difficult to determine.

There are three possible methods of infection, the hematogenous, the ascending, and the lymphogenous, with much evidence to support all views. The infection, of course, is never primary; it must arise elsewhere, and the kidney being the great excretory organ, and the one ill adapted by nature to defend itself against infection, as is the bowel, infection makes great headway here. Perhaps if aeons had accustomed it to excreting from the blood stream infectious material as it has accustomed the bowel to harbor virulent organisms without damage to itself, then, too, the kidney would be phylogenetically as resistent. But this great vascular excretory organ is on occasion demanded to excrete organisms from the circulating blood, and if there is no interference with its drainage or the organisms are attenuated virulence, no infection of the kidney results. But a "little rift within the lute," and interference with the outflow of the renal pelvis or an attack by a virulent organism, perhaps a slight trauma to the kidney, and the breach is made, and we have the hematogenous infection.

That infection from below does occur is equally certain. First of all, there is always some obstruction to the outflow when there is infection of the bladder or ureter, and this stasis really converts the ordinarily separate basins of the pelvis and ureter and bladder, as the case may be, into one, and easily permits an extension of infection by contiguity. Experimentally it has been said by one eminent observer that "with unobstructed urinary tract there have been practically no constantly positive results in the production of pyelitis, experimentally either by the intravenous or intracystic injection." The extension upward of infection in obstructing prostate and stricture are well known to every practitioner by personal experience. The pyelitis of infancy is so very common in girls and so very rare in boys that the inroad of the bacillus coli via the urethra from the soiled napkins of the children into the bladder through the short female urethra and thence upward to the kidneys is now almost universally held as the route of infection in these cases. This ascending etiological source was first accepted, then discredited, but more recent studies in a more accurate manner now leave no doubt that infections do reach the kidney from below.

The support of the lymphogenous route is derived from both anatomical and clinical evidence. Francke has shown a direct lymphatic connection between the colon and the right kidney, and eighty per cent of the cases of amoebic dysentery develop a secondary colon infection in one or both kidneys, and in those cases which develop a chronic infection of the bowel there is likewise an almost persistent infection of the kidney.

Whatever may be the route of the infection, it behooves us to search diligently the primary focus, be it tonsils, teeth, skin infection, colitis, urinary obstruction, constipation, or what not, and to realize that it is at least quite possible for the infection to reach the kidney in any one of these three ways, and until the source is annihilated mere local treatment to the kidney is like mopping the floor without turning off the faucet.

The commonest infective organism of pyelitis is the bacillus coli in the chronic cases and the pyogenic cocci and typhoid in the acute.

Pyelitis may be grouped into three classes, that of infancy and childhood; that of adult life, and that complicating pregnancy and the puerperium. The symptoms and treatment of each class are necessarily different and will be so considered.

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*Read before the Louisville Medico-Chirurgical Society.

The pyelitis of infancy and childhood occurs in girls in a vast majority of cases. The reason for this we have already discussed. Almost the only signs or symptoms we can elicit from these little ones are restlessness, high fever sometimes of the septic, sometimes of the typhoidal type, and a straining at urination as if the bladder were infected. Often the urine shows very little to attract our attention on one or two examinations, but persistent and repeated examinations will usually reward us. It is often difficult to obtain a specimen from a child, and a contaminated one is worse than useless. But in the female child of even a few months a small soft catheter, or if very young, a ureteral catheter, can be introduced into the bladder without any danger or injury to the delicate structures. Oftentimes the baby can be made to expel its urine directly into a funnel or wide-mouth bottle when straining or coughing.

The treatment of this type of pyelitis is that of all others in one great respect, namely, drainage. Large quantities of fluid are paramount, even resorting to proctoclysis if necessary on occasion. The reaction of the urine is worth considering. Formerly we believed that colon bacillus grew only in a very acid urine, but the bacteriology of colon bacilli has been worked out recently on various media and the hydrogenion concentration of the growth varies very greatly. It would seem that the colon cannot flourish well in an alkaline urine, and the only reason for desiring an acid urine is the efficacy of urotropin in forming formaldehyde in the pelvis of the kidney, and as urotropin can only be given to children with great caution, the almost universally accepted treatment of infantile pyelitis is now the use of alkalies, preferably sodium or potassium citrate. The necessity of proper elimination by other channels and the eradication of any distal focus of infection, together with much fluid and alkalies, constitute the treatment for this so common malady. In the rare virulent and obstinate cases in female children lavage of the renal pelvis with a solution of five-tenths per cent silver nitrate is not a difficult procedure and has been done a great many times with excellent results. A small specially constructed cystoscope carrying one ureteral catheter is easily introduced into the female child's bladder and the ureter catheterized with ease under anaesthesia.

The pyelitis of adult life is more readily recognizable, but one cause for its being frequently overlooked even by competent observers is the apparently insignificant findings in the urine. Pyelitis in women is more common than men, the proportion being about three to one given by several large clinics is borne out in our own observations.

Pyelitis of adults may be either acute or chronic. The chronic type presents ordinarily a low grade infection which causes few symptoms in its quiescent state, but it is subject to acute exacerbations which have then all the characteristics of the acute type. The symptoms are malaise, fever, usually low, but in the acute exacerbations of the chronic type rising to 104 and 105 degrees very frequently with rapid remissions to 99, or even normal. Nearly all of these patients have pain in the loin, are tender in the costovertebral angle, sensitive to percussion and manipulation. There is loss of appetite, but rarely any further gastric distress. On the right side the pain is frequently confused with appendicitis, especially when we consider the possibility of retrocecal appendix. The sources of infection are foci elsewhere, in tonsils, boils, carbuncles, prostatitis, seminal vesiculitis, and, most frequently of all, chronic constipation. It must be remembered, too, that when a supposedly simple pyelitis does not subside, stricture of the ureter or stone may be a complicating feature. Any high fever of obscure origin should immediately suggest the possibility of pyelitis or pyelonephritis. Differention from the causes of "acute abdomen" which it sometimes simulates can best be made by a history of the onset, rectal and vaginal examination and a careful search for pain along the courses of the ilio-inguinal and ilio-hypogastric nerves, which is almost always present in pyelitis of severe grade, and costovertebral tenderness. In two of my own personal cases of pyelitis in adults I have seen symptoms that strongly suggested meningitis, and Dana of Boston reports four cases with meningeal symptoms which were due to this cause. He suggests that there may be pressure on the spinal nerves causing meningeal irritation.

I have purposely refrained from mentioning until now the urinary symptoms and findings in this urological disorder among the features of the syndrome, because it is here we would naturally look first, and we are so often disappointed. In mild pyelitis, especially chronic cases, the urine may show very little to excite suspicion. Only a carefully obtained specimen, and in the female only a catheterized one, is of any value. There is usually some bladder discomfort, as frequency or burning, but it frequently is so slight that few patients complain of it voluntarily and only careful questioning elicits it. The examination of several specimens will usually reward us by finding a moderate number of pus cells microscopically, and this in a catheterized specimen is always pathological. Often a bacilluria is present with only a very few pus cells. One early sign in these cases is desquamation of renal and ureteral epithelial cells which is very constant. But in the vast majority of cases of simple pyelitis the severity of the disease is out of all proportion to the urinary findings. When urinary findings become flagrant, then something more than pyelitis is at hand and the kidney has suffered severe damage, such as abscess formation or beginning pyonephrosis. I consider the most salient findings of simple pyelitis to be a bacilluria in acid urine and desquamated epithelial cells from the upper tract.

The treatment of these cases is first of all eradication of any possible distant foci in teeth, tonsils, gall bladder, and in the female pelvic disorders, in the male prostatitis and seminal vesiculitis, and in both sexes obstipation. Then the institution of drainage by the ingestion of large quantities of fluid, 3000 cc. a day, the administration of urotropin and acid sodium phosphate, ten grains each intensively five times a day for a week. Since it is held that urotropin liberates formaldehyde only in an acid media and the point to be medicated is high up in the urinary tract, it is necessary that the acid be administered in large doses so that the treatment be efficacious in the pelvis of the kidney where the urine remains only a comparatively short time. Then a cessation of medication, and during this interval of four or five days alkalinization with sodum bicarbonate and sodium citrate, and then if necessary another course of urotropin in lesser amounts. Rest in bed is essential for these cases and they should not be permitted to exercise until the urine is free from pus and sterile. Many cases will persist despite this medication, and for these, and for very acute cases that do not promptly subside, renal lavage with mild boric solution in very acute cases and with silver nitrate up to one per cent, or mercurochrome in the more persistent and chronic ones, is most efficacious. Our experience has been very favorable with mercurochrome and it is not nearly so irritating as the silver. One can hardly expect to eradicate any deep-seated disease with antisepsis of any sort on occasional application, but the passage of the ureteral catheter, even if no medication be used, facilitates drainage which is a form of treatment most demanded, and frequently leaving the catheter in for a day or more will accomplish excellent results. With the catheter the inflamed areas may be lavaged or a substance left in the pelvis which is inimical to the growth of bacteria, and, in addition, its passage eliminates the presence of serious obstruction in the tract, which may be the cause of persistent pyelitis. Further steps with the ureter catheter are pyelography, which clarifies many of the causes of persistent pyelitis, as kinks in the ureter, beginning pelvic dilation, stone, etc., for which these patients may be treated for a long period, believing that the infection is simply a resistant pelvic one, when, in truth, it is a permanent one unless the cause of obstruction or irritation is removed.

Pyelitis complicating pregnancy does not differ from pyelitis which ordinarily occurs in adults, but certain concomitant factors render its treatment a little different. The effect on both the mother and the fetus must be considered as both are endangered, and the responsibility of abortion is not to be lightly regarded. Many women who had a mild degree of pyelitis in adolescence or young womanhood suffer a relapse when they are in the pregnant condition. Whatever path the infection may travel, it is certain that stasis of the urinary stream is an important contributory cause of pyelitis and in the pregnant woman this is likely to occur. Cesarean section and x-rays have shown that in most cases the pregnant uterus is turned on its long axis to the right side, occasionally the anterior wall faces forward, rarely decidedly to the left. This tends to exert whatever pressure there may be from this hypertrophied organ on the right ureter where it crosses the bony pelvic brim, and it is for this reason that most cases complicating pregnancy occur on the right side.

Pyelitis rarely begins before the fifth month of gestation, and, according to Davis, is more common in patients where the conformation of the body is slender and a short anterior posterior diameter of the abdomen. The offending organism is usually the colon. The symptoms are the same as of other pyelitis, though they may be easily confused with those of septic infection in the puerperium, both appearing about the same time after delivery.

The essential treatment of pyelitis complicating pregnancy is likewise drainage. The suggestion and recommendations of Dr. Asa B. Davis, whose experience with this type of cases is extensive, are excellent. Drainage being decided upon, the method outlined is one beginning with the mildest form and proceeding cautiously if the desired result is not obtained. First giving large doses of urotropin and water, combined with putting the patient in the knee-chest posture for ten minutes several times a day to relieve any pressure on the ureter. If this fails to relieve the symptoms, then drainage of the renal pelvis with the ureteral catheter. To quote verbatim from him. "In the hands of a skilled urologist, who by long experience and constant practice has acquired deftness and unerring skill, I have never noted harm to follow catheterization." The danger of abortion is here referred to and so eminent an authority's endorsement, especially one not himself an urologist, means much. It is evident that occluded ureters cause distended pelves which act as abscesses and must be drained. Should repeated catheterization fail to effect a cure, then the consideration of induction of abortion or premature labor must be paralleled with that of nephrostomy or pyelostomy. This latter decision must lie largely with the obstetrician and the family, as the consideration is more social than surgical, but in passing it should be said that abortion so frequently follows operation that little surgical justification for the latter remains.

This paper is presented with the hope of refreshing the minds of us all on certain points relative to the diagnosis and treatment of pyelitis, the most salient of which seems to be:

First—Its recognition as a cause of many of the obscure fevers of infancy and childhood.

Second—Its similarity to certain acute abdominal conditions, notably appendicitis, as in one large Eastern hospital in the course of five years one hundred and twelve normal appendices were removed from individuals in whom the presence of renal calculi, nephroptosis and pyelitis was demonstrated as the etiological factor producing the symptoms.

Third—The fact that repeated urinary examinations and even catheterization of obstructed ureters may be necessary to establish the diagnosis. That the urinary findings in many cases are not marked, even in severe cases, and that bacilluria and desquamated epithelium are the most important findings.

Fourth—The necessity of treating this disease in its incipiency and effecting as complete a cure as possible in order to insure against its return and prevent further ravages on the kidneys.

Fifth—The examination of the urine of pregnant women routinely for evidences of infection, as well as for evidences of nephritis.

Sixth—The necessity of search and eradication of the focus of infection, rendering the urine sterile and pus free before discharging the patient, and in persistent cases the further study by pyelography to insure the fact that no obstruction, kink or chronic irritative factor as stone is present.

Seventh—The importance of chronic constipation as a contributory factor.

DISCUSSION:

Claude G. Hoffman: As Dr. Grant has stated, the diagnosis of pyelitis is not always easy, as the symptoms may range from almost nothing to very serious disturbances in fulminating cases. The urinary findings are oftentimes misleading. In some of the most severe types of pyelitis that have come under my observation, the urinary findings have been insignificant, there being present merely renal and ureteral epithelial cells with only a few pus cells in each field. These are recognized, however, as being the most important early diagnostic signs.

I think there is still some question about the infection in pyelitis being of the ascending type. For a time this theory was discredited and discarded absolutely, but I believe it has now been revived. Some observers have tried to produce pyelitis by injecting pure cultures of colon bacillus into the urinary bladder with absolutely negative results. It was found the kidney pelvis could not be infected in that way, and it was for that reason the theory was exploded for the time being. The fact, as mentioned by Dr. Grant, that the majority of colon infections of the kidney pelvis are noted in female children, gave rise to the theory that the infection was ascending, having its origin in soiled napkins.

The lymphogenous mode of infection now seems to enjoy the greatest popularity. It is well known that the greatest number of colon infections involve the right kidney, and that the lymphatics of the ascending colon and the right kidney are in close communication; whereas the descending colon merely passes over the capsule of the left kidney. These facts appear to confirm the theory that the infection is lymphogenous rather than ascending in type.

In the treatment of pyelitis, due to colon bacillus infection, it was first thought that an acid medium would encourage the growth of colon bacilli, as it was known that these bacilli would produce acid in the fermentation of sugars, but it was afterward shown that the colon bacilli flourished equally well in either acid or alkaline media provided these media were well diluted. The growth of colon bacilli is almost entirely inhibited in either acid or alkaline media when sufficiently concentrated; in other words, growth of colon bacilli depends not upon the medium so much as the amount of concentration.

We have all doubtless been taught that in pyelitis the patient should be given an abundance of water, and at the same time drugs are administered with the view of increasing the alkalinity or acidity as the case may be. We are thus trying to accomplish something with drugs and are defeating the object by giving large amounts of water; we are trying to get acid or alkaline concentration by means of drugs, and prescribe abundant intake of water which produces dilution. Therefore, we are not getting either acid or alkaline concentration. In my opinion most patients with pyelitis do better by alkalinizing rather than acidifying the urine. The kidney, the pelvis and the ureter are often irritated by the presence of acid urine, and are soothed by being constantly bathed in an alkaline medium.

Before making the diagnosis of pyelitis we should utilize all the scientific methods at our command, and even then mistakes will often be made. Patients are not infrequently sent to the Louisville City Hospital with the diagnosis of some abdominal lesion when complete examination demonstrates only the presence of pyelitis. I can readily see, before we had these scientific procedures, how cases of pyelitis were overlooked, but there is less excuse for mistakes in diagnosis at the present time.

In chronic pyelitis much benefit may be expected from drainage, especially when infection is considerable and pus abundant. If pus is overabundant and persistently present, an ureteral catheter left in situ for twenty-four hours will do more good than local applications or pelvic lavage practiced every four or five weeks. Before resorting to pelvic lavage the patient should be thoroughly examined. A pyelogram often gives valuable information, as does also kidney function test on the affected side. Many times the microscopic findings may justify a diagnosis of pyelitis, yet there may be present a pyonephrosis which, of course, will not subside under pelvive lavage.

I have not had wonderful results from the use of mercurochrome. In my experience this drug has been very irritating when used for pelvic lavage or instilled into the urinary bladder. It is a great deal more irritating than nitrate of silver used in proper strength. Some observers use silver nitrate in five per cent solution, but I have always been chary about using this strength. I have never thought it wise to increase the strength of the solution beyond two per cent, beginning with $\frac{1}{4}$ or $\frac{1}{2}$ and increasing it gradually. I have seen severe colic following instillations of two or three ccm. of a two per cent solution of silver nitrate into the kidney pelvis. Pain was so severe that morphine was necessary for relief. For this reason I have feared to use stronger solutions.

Stuart Graves: One point not mentioned by Dr. Grant is the use of vaccines in chronic pyelitis. I have been told by some urologists that they had obtained very good results from the administration of autogenous vaccine made from cultures taken with proper bacterial procedure. I would like to ask Dr. Grant's opinion about this method of treatment.

J. Garland Sherrill: It has always seemed to me that the kidney, instead of being non-resisting as stated by Dr. Grant, is one of the most resisting organs of infection, for the reason that a great many bacteria taken into the system are eliminated largely through the urinary flow, and this being a fact it is really remarkable that we do not have more infections of the kidney structures, the pelvis, ureter, etc. I have always been of the opinion that the majority of cases of infection of the pelvis of the kidney came from above. I can readily understand the possibility of infection from below, but almost all these cases occur with obstruction as Dr. Grant has said. If anyone will attempt to distend the urinary bladder and force material upward through the ureter, he will find it exceedingly difficult, because when the bladder is distended with fluid it closes the ureteral orifices. Infections of the bladder may ascend along the ureter, especially where the ureteral mucosa is denuded by the passage of calculi or irritation from any cause.

Lymphogenous infection of the kidney pelvis alone does not seem likely. Where infection is carried through the lymph channels the patient is more apt to have pyelonephrosis than infection of the pelvis. It is easy to understand how any type of bacteria in the blood may be carried through the renal circulation and passing out of the vessels infect the kidney pelvis. There may be and probably is in many cases a large output of bacteria in the pelvis without any infection. Pyelitis results in these cases from something in addition to the simple passage of bacteria. In my opinion bacteria would have to be present in overwhelming numbers to produce infection in the absence of any other factor. In addition to the bacteria there must be present in the majority of cases at least some obstruction or some slight trauma to the kidney pelvis from small crystals or particles of calculi which in their passage with the urine damage to some extent the mucosa, thus permitting the bacteria to become localized in the kidney pelvis. Showers of oxalate of lime crystals have been noted not infrequently which acted as a contributing factor to the production of pyelitis. If this fact is borne in mind it is possible oftentimes to assist the patient early in overcoming the affection by proper medication. Urotropin is an excellent remedy in cases of this type and proper diet is also important.

After the diagnosis of pyelitis has been made, which can usually be done by careful observation, the next step is to locate the focus of infection and institute the requisite remedial measures. At the present time the profession has become awake to the damage done by focal infections in distant parts of the body. The teeth, tonsils, gall bladder and gastrointestinal tract, including the appendix, must be interrogated. In children particularly constipation and the rapid growth of intestinal flora may be the cause of many cases of pyelitis, and the disease rapidly subsides after the intestinal tract has been thoroughly emptied and the focus of infection removed. I am impressed with the fact that in the majority of instances infection of the kidney pelvis is probably hematogenous in origin.

I agree with those who believe it is not always wise to make the urine acid in these cases. The symptoms can be more promptly relieved by the administration of buchu and some alkaline salt. Given in moderate doses potassium acetate and buchu are very useful. Many of these patients will recover under simple forms of treatment.

Drainage of the kidney pelvis is of the utmost importance. Regardless of what Dr. Hoffman has said about water diluting media which should remain concentrated to obtain local action of certain drugs, I believe the ingestion of large quantities of water constitutes the best method of effecting drainage. There is nothing which will be of greater benefit than flushing the kidney with a large amount of water. The kidney will excrete water with less disturbance than anything else. For that reason all the simple diuretics, such as potassium citrate or sodium citrate, are useful when followed by the ingestion of water in sufficient quantities. These remedies alone will oftentimes overcome these infections.

Another factor in treatment not mentioned in the paper is the use of saline solution or sodium solution by means of proctoclysis. No form of treatment is more useful in overcoming infection of the kidney pelvis than proctoclysis after thoroughly emptying the alimentary canal by a dose of castor oil or other laxative. For this purpose I prefer the so-called Murphy drip method. I believe these simple measures ought to be given a thorough trial before resorting to mechanical treatment. If no improvement occurs pelvic lavage may be tried together with the instillation of medicated solutions into the kidney pelvis. Vaccines may be advantageous especially in chronic cases. It is remarkable at times how quickly these infections will subside after treating the kidney pelvis. On the other hand, I have seen many cases of colon bacillus infection of the kidney pelvis subside promptly under simple treatment, and I think this should always be tried before resorting to mechanical measures.

Henry Enos Tuley: Dr. Grant has so thoroughly covered the subject of pyelitis in his paper that there is little left to be said except to emphasize some of the points he has made. It may be recalled that I read a paper before this society some time ago in which the possibility of ascending infection of the kidney, especially in girl babies, from soiled napkins had not been sufficiently emphasized, and my suggestion was not very well received. I am glad that Dr. Grant has come to the conclusion, based on his own observations and those of other investigators, that such a mode of infection is possible.

One of the outstanding papers read before the recent meeting of the Mississippi Valley Medical Association was by Kretschmer, of Chicago, on the question of pelvic lavage in the treatment of these infections in children. Perhaps to him more than anybody else is due the popularizing of this method of treatment in the young. He emphasized the fact that the procedure is easy of accomplishment and the results fully justify his enthusiasm on this special form of treatment. Kretschmer stated that he had frequently catheterized the ureters in both boys and girls in certain types of cases with great benefit.

One point which seems to have failed to attract any attention, although it was mentioned in Dr. Grant's paper, is the mechanical cause of pyelitis in pregnant women. The mechanics of the gravid uterus and the pressure it exerts on the right kidney unquestionably is an important factor. It has not been my misfortune to see an acute case of pyelitis during pregnancy, but I can recall several instances in which a "lighting up" of the process occurred shortly after delivery, and this should always be borne in mind in differentiating the cause of fever in the parturient woman. Our most natural thought, when fever develops shortly after delivery, is that there has been some slip in technique and possibly infection through the parturient canal, but I have seen cases in consultation with men whose technique was beyond reproach where the symptoms promptly subsided when the diagnosis of pyelitis was made from a catheterized specimen of urine and proper treatment instituted.

I think one special cause of the symptoms or the "lighting up" of the process immediately after delivery is distension of the bladder from relief of pressure which occurs immediately after delivery. I saw a case recently in which the bedside chart showed a perfectly satisfactory passage of urine after delivery, and yet examination of the abdomen on the third day showed a distinct enlargement in the bladder region and seventy-six ounces of urine was obtained by catheterization. During this time the patient had been passing, according to the chart, a satisfactory quantity of urine. The patient had some fever afterward which promptly subsided under the administration of urotropin. I believe the back pressure had something to do with the "lighting up" process.

Another point which is helpful in the diagnosis of these puerperal cases particularly, and this was emphasized by Dr. Grant in his paper, is thorough examination of the urine during pregnancy. I believe the routine practice of the majority of those who look after pregnant women is to simply make a test for albumin, and if no albumin is present the patient is considered free from symptoms indicating the pre-eclamptic state. Urinary investigation of pregnant women should always include careful microscopic examination. I think this is very important.

Another feature of importance, when report is made of pus in the urine, to ascertain how many cells there are to the field, and also to know whether the specimen of urine was centrifugalized or not. There are always a few leucocytes found in centrifugalized specimen of urine, but if the specimen is examined without centrifugalization and ten to fifteen pus cells found to the field it is always suspicious.

The vaccine treatment has already been mentioned. I want to emphasize the use of vaccines especially in subacute and chronic cases of pyelitis in childhood where the patients do not respond to the ordinary methods of treatment. Autogenous vaccine made from the urine under proper precautions and adminstered to children who do not respond to ordinary treatment will often yield satisfactory results, and I believe this method should be given a trial before resorting to mechanical measures, pelvic lavage, etc.

I would especially emphasize the fact that when ureteral cathertization becomes necessary, it is a procedure which in proper hands can be accomplished perfectly well in children no matter how young.

Claude G. Hoffman: Before limiting my practice to urology I saw a great many cases of pyelitis which were treated by autogenous and stock vaccines, and thought at that time good results were secured. At present I am using vaccine less frequently, but believe benefit is oftentimes derived therefrom. I can recall six or eight patients living out of the city and who could not come to the office frequently for treatment in whom pyelitis subsided under vaccine treatment. Of course, where combined methods are used, i. e., mechanical treatment and vaccines, it is difficult to detertmine with any degree of accuracy which produced the greatest benefit. I have little faith in stock vaccines as a rule, but where vaccine is made from the patient's own colon bacillus, this organism predominating, I believe treatment by this method does good. In colon bacillus infection, particularly autogenous vaccine, seems to produce the best results.

Dr. Tuley mentioned ureteral catheterization in children: Dr. Kretschmer has done a great deal of this work, the most of it being confined to young girls. It is rather difficult to perform cystoscopy on a boy under the age of twelve years, but in female children even under twelve years it is not a difficult procedure. I have seen other observers attempt ureteral catheterization of young children under general anesthesia with complete failure. Kretschmer has several times catheterized the ureters of young boys, but he is a pioneer in this work.

In all chronic cases of pyelitis mechanical treatment becomes necessary. It is the only means by which the infection can be overcome. It assures adequate drainage which after all is the most important factor in the treatment.

E. Owsley Grant (closing): In my opinion drainage is of paramount importance in the treatment of every case of pyelitis. Many animal experiments have been made in an effort to produce pyelitis without ligating the ureter, all of which proved unsuccessful. Intra-cystic and intravenous injections of virulent organisms failed to produce the disease where no obstruction existed. On the other hand, pyelitis resulted in practically every case where there was unilateral or bilateral ureteral occlusion.

I believe the consensus of opinion today is that the lymphogenous route of infection is very rare. My personal experience has been insufficient to warrant a positive opinion, but impartial refiew of the literature shows that the lymphogenous theory has practically been discredited. The theory of ascending infection was first accepted, then discredited, and has now been reinstated. I believe this method of infection is more common than either the hematogenous or lymphogenous.

What Dr. Sherrill has said about the kidney being a resisting organ to infection is true, although the statements in my paper may not seem to confirm that idea. Resistence of the kidney to infection is due to the fact that in the large majority of instances it is perfectly drained in the absence of obstruction. When obstruction occurs from any cause there is usually infection of the renal pelvis or ureter which may be followed by pyonephrosis and destruction of the kidney structure. The specimens which I exhibited before the last meeting of this society furnished good illustrations of what may be expected. In one case there was total destruction of the kidney (hydrophrosis) from infection and obstruction of the pelvis; in the other there was an enormous hydroureter from double ureteral stricture, the kidney being practically normal. Nephrectomy was performed in each case and the patients recovered.

Pelvic lavage is not a difficult procedure and should be practiced when it becomes necessary. However, I want to emphasize again that the main object of lavage is to secure adequate drainage of the kidney. At the same time medicated solutions may be instilled to combat infection. The simplest way to get drainage is by the ingestion of large quantities of water, and this, in my opinion, is the method par excellence, but if drainage cannot be secured in this way then the matter of lavage must be considered.

It must be remembered that the original lesion is not in the kidney pelvis proper, but in the submucosa, and antiseptic solutions introduced into the pelvis probably accomplish little good. We know the action of silver nitrate is simply to cause coagulation of the secretion on the surface where applied, but it is not particularly penetrating. My personal experience has been that silver nitrate almost invariably causes acute pain when injected into the kidney pelvis, and the good results noted following the application of this agent are probably largely due to drainage rather than to the installation of the silver solution.

Personally, I use mercurochrome in practically every case. This is a combination of antiseptic remedies, largely mercurial products with a very penetrating dye; the mercurochrome is thus left in the kidney pelvis and creates a field which is inimical to the growth of bacteria. In my experience this agent has not been irritating and the patient complains of no pain after this introduction. Nitrate of silver, on the other hand, has always caused more or less pain. In pelvic lavage it has been my custom to use mercurochrome in one per cent solution.

My experience with vaccines in the treatment of pyelitis has not been extensive, because I have never favored them in other fields of surgery to any great extent. I have not used them very much in pyelitis principally because it is difficult to get the offending organism for making the vaccine, especially when the patient appears with the urine which is already filled with the organisms of mixed infection; in fact, there are so many strains of colon bacilli that a polyvalent vaccine would be required to be certain it contained the offending organism. I did not mention the vaccine treatment in my paper because my experience with it has been limited and further investigation of the literature does not show that vaccine is to be depended upon, especially in the pyelitis of adults. I agree with Dr. Tuley, however, that in resistent infections of childhood where the development of pyelonephrosis is unlikely and obstruction is seldom due to calculi we can afford to take the chances of using vaccine, extending the treatment over a longer period than in adults, where trouble is more likely to be due to calculi or ureteral kinks which must be determined promptly by pyelography.

TOXEMIA OF PREGNANCY WITH EYE SYMPTOMS.*

By Samuel G. Dabney, Louisville.

A young married woman with a child about seven months old was referred to me from an adjacent city because of impaired sight. She said her sight had become impaired during her pregnancy, but at just what period she could not state, nor did she associate the two in relation to cause and effect. Of course, it is possible there may have been no such relationship, but I concluded there must be, as she said "her sight became bad when she was several months advanced in pregnancy." She had suffered from headache, nausea, swelling of the ankles, etc., but stated "her urine had never been examined during her pregnanry." She was delivered of a living child at about term, she had no convulsions, and made an uneventful recovery. Her urine was examined several times after delivery and found normal. Her vision at last examination was: right eye, 20-50; left eye, 20-70.

In my opinion this patient had optic neuritis with slight atrophy, due to the toxemia of pregnancy. There are three forms of intraocular diseases due to the toxemia of pregnancy: (1) The most typical is the so-called star-like patches about the maculae; (2) retinal hemorrhages, and (3) typical optic neuritis. In the average case all three forms are present, occasionally only one, sometimes two. My judgment was, and I so wrote her physician, that she had toxemia of pregnancy without convulsions producing a low grade optic neuritis. Her vision is not likely to get worse and it may improve.

The question is, can a woman have toxemia of pregnancy wtih the symptoms I have mentioned, and recover without convulsions? In this case there was no evidence of brain tumor to account for the eye symptoms; both eyes were involved simultaneously, one worse than the other. I have seen probably half a dozen cases of this kind and all the patients recovered with useful vision. I have wondered whether such cases were of common occurrence.

DISCUSSION:

Sidney J. Meyers: Last Thursday a woman thirty-two years old, eight months pregnant, the mother of several children, the youngest eight years of age, was sent here by her physician with the diagnosis of impending eclampsia. Her systolic blood pressure was 220 mm. Hg.; her urine was loaded with albumin and casts; she was edematous and had headache, but complained of only her eyes. She was taken to the Jewish Hospital and labor induced, the child being born at 3 o'clock Friday morning. She was prematurely delivered, but the baby was well formed and is living.

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*Clinical Report before the Louisville Medico-Chirurgical Society.

At 8 o'clock Friday morning, five hours after delivery, her systolic blood pressure was 140. Her urine was examined today and found free of casts, but there was still some albumin, specific gravity 1019. Five days after delivery she still complained that she could not see. I telephoned her doctor and he asked me to call in consultation a specialist in Louisville. He examined her eyes yesterday without a mydriatic and reported that she had optic neuritis with the macular picture Dr. Dabney has described. Vision right eye limited to finger counting at ten feet; left eye eight feet. The specialist gave an unfavorable prognosis.

I recall another woman with symptoms indicating a pre-eclamptic state who was delivered at the Norton Infirmary by a fellow practitioner. She was allowed to progress to term without the induction of labor. The eye symptoms were characteristic and continued after delivery. It has been several years since she was delivered and she is still unable to read print.

I do not know whether albuminuric retinitis existed in these cases or whether there was simply an engorgement of the optic vessels. Those of you who do obstetrics have probably seen many cases of acute blindness in uremia, but they usually recover their vision. If the patient does not die from uremia vision is usually restored.

Ben Carlos Frazier: In the case reported by Dr. Dabney one or two links in the chain are missing because an accurate history could not be obtained. Every one who does obstetrical work has observed patients with symptoms more or less similar in character. I have seen two or three during the last year who had alarming symptoms, but they all recovered.

A woman was recently requested to come to see me whose baby I delivered five years ago. She is now living in another city and was here on a visit. I feared at the time of delivery that there would be permanent loss of vision, as she had all the symptoms of eclampsia except convulsions. This was soon after Dr. Gary promulgated his theory about "milking the mammary glands" in eclampsia. I resorted to this procedure, the woman was delivevred safely at term, and I was anxious to ascertain whether her vision had been restored. Examination showed that she had normal vision and she said had been no eye symptoms since the birth of her child.

I believe Dr. Dabney is correct about the diagnosis in the case he has reported. Oculists and perhaps also general practitioners have been inclined to give too grave a prognosis, both as to life and future vision, in many cases, not only in pregnancy, but in albuminuric retinitis of Bright's disease. As an illustration: a woman died of Bright's disease two weeks ago; a doctor had told her husband three years ago that she would not live three months. Her vision remained fairly good and she lived in comparative comfort for three years. She did not fail more rapidly than some patients whose symptoms are less severe. I merely mention this case to show that the prognosis is not so grave as usually stated.

F. C. Simpson: I recently saw a patient having symptoms similar to those related by Dr. Dabney. During the last four months of pregnancy the woman had persistent albuminuria, a few casts, headache and evidence of retinitis She was finally delivered at term without having any convulsions, but albuminuria still persisted at the time she left here six weeks after delivery. However, the eye symptoms had improved considerably. Eliminative treatment was used with careful regulation of diet, etc. I have seen a number of cases of this kind where the eye symptoms subsided after delivery. The patient mentioned was taken to the hospital for careful observation with the exceptation of having to induce premature labor at any time, but fortunately this was not necessary. Several blood urea tests were made and as the percentage was never less than 11, labor was not induced. Had the blood urea reached 10 at any time, the woman would have been immediately delivered. I believe much valuable information can be secured by the use of blood chemistry in such cases.

I have seen many patients with eye symptoms during pregnancy and the majority of them have recovered with useful vision. There seems to be no permanent injury to the eyes in these cases, at least that has been my experience.

John W. Moore: In uremia there is marked retention of nitrogenous products in the blood—urea creating uric acid, etc. In eclampsia the symptoms are toxic in origin and resemble those of uremia, but nitrogenous products in the blood are rarely increased. I have noticed one report recently where there was a slight increase of nitrogenous products in the blood, but from a clinical standpoint not enough to make a definite diagnosis.

Normally the urea nitrogen ranges between twelve and sixteen milligrams per 100 cc. of blood. Urea is of exogenous origin. A normal individual after a meal heavy in protein will have the blood urea increased; eliminate protein from the diet and not much urea will be secreted. More than sixteen milligrams of urea per 100 cc. of blood indicates an abnormal condition of the kidney. The pathology in eclampsia, as I understand it, is not in the kidney. but in the liver; no one has been able to find any structural change in the kidney, but the liver shows necrosis from circulating toxic products.

As to albuminuric retinitis: Eye specialists and internists ought to get together and try to solve this problem. In one case the kidney may show marked evidence of disease, there is retention of nitrogenous products in the blood, the retina is filled with "white stars," and the patient's vision is greatly impaired. In another case there may be slight evidence of kidney pathology, yet similar eye symptoms may be present. There is here a direct contradiction in the clinical findings. The eye condition is called "albuminuric retinitis," yet the kidney may be free from disease, the symptoms being due simply to toxemia.

S. G. Dabney (closing): I reported the case as one of toxemia of pregnancy, yet I did not consider the diagnosis positive. I am glad the obstetricians present think I was warranted in my conclusions.

.Many other points of interest are suggested by the discussion. There are four features which should be understood and the lines definitely drawn: First, the prognosis; second, treatment of the eye symptoms; third, uremic and nervous symptoms seen now and then; fourth, the effect of the toxemia on the ocular structures.

As to the prognosis: There is considerable misunderstanding on this subject. Any woman whose sight has become gradually impaired during pregnancy almost certainly has some involvement of the retina or optic nerve, and the physician in the graver is assuming a tremendous risk in not promptly inducing labor. I have seen a number of cases of that kind. I recall one woman in whom pregnancy was allowed to progress to term; after delivery her vision was 20-100. In some instances there is greater impairment. The patient referred to in my report has vision of 20-50 and 20-70. I do not believe her sight will ever improve beyond that point; it will probably remain stationary. When a woman shows well-marked albuminuric retinitis during pregnancy, the advice of oculists would be to induce labor, otherwise the prognosis is exceedingly grave as to future vision. However, in the majority of cases the prognosis is favorable if labor is promptly induced. I have yet to see a patient who did not recover useful sight under such circumstances.

All of you have doubtless seen uremic amaurosis lasting from a few minutes to several hours attended by headache and other symptoms. Uremic amaurosis is not due to disease of the eye and never persists longer than twenty-four hours; the patient usually recovers vision in much less time. It is an affection of the nervous system due to the toxemia.

Dr. Frazier seems to be under the impression that oculists (leaving pregnancy out of the question) are prone to give a bad prognosis in nephritics with albuminuric retinitis. The statement has been made that most of them die within a few months. I think that is an error. Textbooks say that the most of them die within eighteen months or two years. I saw one such patient who lived three years. It is my understanding that many patients with chronic interstitial nephritis without retinal involvement may live indefinitely, finally dying from some intercurrent affection, but with retinal disease death generally ensues inside of two years, hence the prognostic importance. I will mention two or three illustrative cases: A physician in a neighboring town asked me to come to see his wife; that she had Bright's disease attended with eye symptoms. The late Dr. Wm. Cheatham had some time previously been asked to examine a daughter of this same physician because of severe headaches with eye symptoms; the diagnosis of Bright's disease was made by Dr. Cheatham after he had examined her eyes, and told the physician it would be fatal. This prognosis was correct; the young lady died within a year. I found that the doctor's wife had no albuminuric retinitis, but she did have Bright's disease; the daughter had Bright's disease with albuminuric retinitis and the diagnosis was made by examination of the eyes. The doctor himself (husband and father of the other patients), a man of about sixty-five, first consulted me in August of the same year, saying he wanted other glasses as he could not read well. He had marked albuminuric retinitis; I suggested that he consult an internist and he went to see the late Dr. John G. Cecil. He had Bright's disease and died in February, just six months later.

I am very much interested by what the gentlemen have said in their discussion of my report, and am glad they think I was warranted in my tentative diagnosis. I still maintain that where there are serious eye symptoms during pregnancy it is dangerous to allow the woman to proceed to full term; labor should be induced before permanent damage has been done. When this plan has been followed I have never seen a patient who did not recover useful vision.

CARCINOMA RECTI—CASE REPORT.*

By S. C. McCoy, Louisville.

Patient, A. M., a male, white, aged thirty-two years. There was no history of malignancy, syphilis or tuberculosis in the family. Father, mother and one brother living and well.

August 31, 1921, the patient noticed that "the usual thing did not happen after a dose of purgative medicine," such as he had been in the habit of taking, i. e., he had no fecal evacuation, there merely being discharged of a small quantity of mucus. Soon thereafter he became nauseated and vomited; nausea continued, tenesmus gradually increased in severity, and his abdomen became slightly distended.

Three days afterward the family physician was called who prescribed the usual medical treatment, enemas, etc., with some benefit, there occurring several liquid evacuations. However, partial obstruction still persisted and a week later the patient was sent to the hospital for further observation.

Physical examination: A well-developed and apparently well-nourished man. Investigation disclosed a large, annular tumor in the rectum about two and a half inches above the anal verge. The growth seemed firm on palpation of its lower border and was only slightly movable. Manipulation caused some pain, but there was no ulceration or bleeding. The rectal lumen was so completely occluded that the index finger could not be inserted through the strictured area to palpate the upper limits of the tumor. The blood Wassermann was negative. Clinical diagnosis: Carcinoma recti.

On September 2, 1921, a preliminary colostomy was performed after matters had been thoroughly explained to the patient. The loop of sigmoid was drawn from below upward as far as possible and the operation completed in the usual manner.

Two small sections of the rectal tumor were excised and submitted for examination to Dr. Stuart Graves, of the Pathological Department, University of Louisville, whose report follows:

Gross description: Specimen consists of two pieces of tissue, each 10x5 mm., dull red and soft. Microscopical diagnosis: "Sections indicate colloid carcinoma."

The patient has been comfortable since the colostomy and fecal evacuations have occurred regularly. Secondary operation for excision of the tumor and involved portion of the rectum will be considered later.

DISCUSSION:

Granville S. Hanes: In the case reported by Dr. McCoy I believe the neoplasm should be classed as an adenocarcinoma of the fibrous type and not a colloid cancer. Such tumors are not common, but are occasionally encountered. The growth is annular and involves the entire circumference of the rectum; to the examining finger it feels like a large rubber pessary with a small opening through the rectal lumen. In this case it was impossible to introduce the finger into the opening until the patient had been anesthetized; the index finger could then be forced through the strictured area and the upper limit of the tumor palpated.

There are several points in the diagnosis of rectal cancer which should be understood: Bleeding is not an important early symptom in cancer of the rectum. I have seen cases of the type reported, even late in the history of the disease, where the mucosa was not ulcerated, there was very little irritation, there was no pain, there was no bleeding, there was merely the deposit of a circular mass of fibrous tissue in the rectal wall. When such patients apply for treatment obstruction is usually present, and it is this which calls their attention to the fact that there is somehtnig wrong. The mucosa is not ulcerated at that time and there is consequently no bleeding. In the majority of cases pain is a late symptom.

Where there exists a soft adenocarcinoma of the glandular type the tumor disintegrates early, and in such cases there is usually bleeding and abundant mucus in the dejecta. However, many other lesions may exist and produce hemorrhage, therefore this factor of itself as a diagnostic symptom in rectal cancer is practically without value. In adenocarcinoma diarrhea alone is of no great diagnostic import.

Cases of the type reported are always serious. In performing colostomy the sigmoid was drawn far upward, leaving the redundant portion above the opening to provide a reservoir for accumulated feces. Even if the patient undergoes a subsequent operation for removal of the tumor and involved portion of the rectum, anastomosis will be impossible and the colostomy will have to be a permanent affair. I believe a Kraske operation should be performed upon this patient, not with the idea of making an anastomosis, but to excise all of the diseased tissue possible. If he is permanently relieved he will still have a long sigmoid and will experience little difficulty with the colostomy opening.

In all cases of this character, whether there exists a large fibrous tumor or a soft adenocarcinoma, I believe preliminary colostomy should be made. In removing a rectal cancer the surgeon should never operate with a view of leaving certain tissues with the idea that the patient may later have control of his alvine evacuations. All the diseased tissue must be excised if a favorable result is to be expected. I believe it is better to make a colostomy, leaving all the sigmoid possible above the opening to act as a reservoir for the feces, and allow the patient to thereafter defecate through the artificial anus. In later excising the rectal tumor all the diseased tissues should be removed if possible, abandoning the idea of making an anastomosis in the hope of giving the patient future control of his evacuations through the natural channel.

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*Read before the Jefferson County Medical Society.

I sent a patient home today who had been operated upon for rectal carcinoma by an Ohio surgeon. He made an anastomosis to insure exit of feces through the normal channel, but failed to remove all the diseased tissue. The patient now has a large cancerous growth filling the pelvis and is beyond the possibility of relief.

Frank T. Fort: There are several types of rectal tumors. I have under observation a man who was operated upon for carcinoma involving the posterior rectal wall eight years ago. He remained perfectly well until last spring when there was a slight recurrence in the upper margin of the former wound. This was easily excised, the wound healed promptly, the man has fair control over his fecal discharges, and has had no further trouble. This was a slow growing carcinoma, such as sometimes seen about the rectum. On the other hand, some rectal cancers progress rapidly and destroy life before anything can be done.
I recall a young negress who came under my observation nearly ten years ago. She had an annular stricture of the rectum about one inch from the anal verge. She had resorted to various purgatives, but not being able to produce an evacuation, she had to insert a hairpin into the rectum to facilitate the escape of fluid feces. She had become very much emaciated; when I saw her she weighed about eighty pounds, and her condition was so grave that something had to be done at once. An incision was made from tuberosity of left ischium to the rectum; the rectum was tunnelled around by blunt dissection; the stricture was excised; this included the whole circumference of the bowel and about one inch in length; the bowel was brought down and an end-to-end anastomosis made to the short portion left at the anal opening. The ischio-rectal fossa which had been opened to resect the stricture was lightly packed with iodoform gauze. She made an uneventful recovery from the operation, and three months after the operation weighed about one hundred and forty pounds. At that time upon digital examination I found no stricture and she had developed fairly good control of the sphincter muscles.

J. Garland Sherrill: I believe in the future the diagnosis of cancer in every situation will be made much earlier than it has in the past. In the majority of cases of rectal cancer the patient is not seen by the surgeon until symptoms of obstruction has occurred. The earlier symptoms are often overlooked, and the patient applies for relief only after obstruction has become almost complete. I have seen a number of patients of this kind.

The important question arises, what had best be done when a patient appears in a very serious condition from obstruction? I have occasionallly performed immediate and complete radical operation, but as a rule I believe that is a bad method of procedure. The intestine is filled with feces and there is always danger of contaminating the operative field. The preliminary step should be the minor operation of colostomy; in that way the accumulated feces can be evacuated, the diseased area can be irrigated or otherwise treated; the patient usually recovers from this simple operation without complications and improves in general health. In a few instances the patient remains comfortable and refuses to submit to further surgery. In any case where rectal cancer has progressed to the point of causing obstruction, no matter what method of treatment may be employed, the prognosis is unfavorable.

With the method of examining the rectum employed by Dr. Hanes, and with the Roentgen-ray, we have two means of making the diagnosis much earlier than heretofore. Every patient who passes blood or mucus with the feces, or who has constipation alternating with diarrhea, should be subjected to careful rectal examination, every means at our command being used to determine the cause of the symptoms.

When rectal cancer has progressed to the point where the patient complains of pain, it is usuallly too late for the surgeon to accomplish anything by any known method of procedure. I have seen patients with intestinal cancer where metastasis had occurred in the liver before the diagnosis was made. The reason for this is that pain is always a late symptom, the lower segment of the rectum is not richly endowed with terminal nerve filaments, the rectal pouch is of large size, stricture occurs gradually by the contraction of the neoplasm and until there is considerable tension the patient expereinces no pain. Rectal tumors cannot be palpated externally except in the lower segment, and the interior of the rectum is not examined unless the patient complains of symptoms referable thereto. For these reasons carcinoma recti is often overlooked in the early stages.

If investigation of the entire gastro-intestinal tract were made routine in every patient over forty years of age, many cases of rectal cancer would be discovered that are overlooked in the course of general examinations. Some authorities recommend that every man after reaching maturity should undergo a thorough physical examination once per year. Of course, this would include rectal investigation.

In regard to the manner of operating on patient with rectal cancer: I agree with Dr. Hanes that preliminary colostomy is the proper plan of procedure whether the rectum is to be later radically excised or not. Where it is possible to do so there is no question about the advisability of radical removal of malignant neoplasms wherever situated, sacrificing all the tissue necessary to insure complete eradication. In rectal cancer I believe the Kraske operation, or a modification of that procedure, will be found the best method of attack. It has been hitherto believed by many observers that the Kraske is a very serious and difficult operation, but this is a mistake. It is one of the most simple operations which can be undertaken for removal of the rectum; it affords better access to the tissues to be excised than any other procedure and hemorrhage can be more readily controlled; in fact, there should be very little hemorrhage during a properly performed Kraske operation.

Some time ago I had under observation a woman, aged seventy-four years, who had a malignant tumor of the rectum about two inches proximal to the anal opening. The growth was removed by making an incision through the sacro-iliac ligament instead of doing a typical Kraske operation; the procedure was completed without difficulty and the patient recovered. In cases where the gut is resected below the part covered by peritoneum a temporary fecal fistula usually follows which later closes spontaneously in most instances.

In every case of rectal cancer, regardless of the operative steps undertaken for its removal, the application of radium is advisable. Even where a preliminary colostomy is made, with or without any expectation of attempting radical operation at a later date, the application of radium to the site of the lesion may be of benefit.

Prompt and complete excision by the method best suited to the individual case will give the best results.

CASE REPORT—MUCOUS COLITIS DUE TO PARTIAL INTESTINAL OBSTRUCTION.

By H. N. Leavell, Louisville.

The patient, J. P. J., a male, aged twenty-six years, was first seen March 4, 1920, with the following personal history: In the autumn of 1917, after one and a half years service in the cavalry on border patrol, he first noticed mucous in his alvine evacuations. He thought the condition was caused by a "bad cold."

In the spring of 1918 the patient was in hospital at San Antonio, Tex., Fort Sam Houston, with sciatica. He complained of a cramp attack in abdomen while under treatment for rheumatism; pronounced appendicitis. Mucus continued until removal of appendix.

No return until August, 1918. Malignant form of dysentery in France; continued until return to America in February, 1919. Mild form until April, 1919, then very severe. Discharged from army January 28, 1919. Under treatment in Florence Infirmary last two weeks of May, 1919. Liquid diet and medicated enemas. Pronounced amebic dysentery upon entrance, and he received while there two hypodermic injections per day of ementine. Relief for one week. Dysentery continued.

August, 1919, patient under treatment for whole month of August in Baptist Hospital, Columbia, S. C. Medicated enemas twice each day. Special diet, large amount of bismuth taken. Proctoscopic examination daily.

September 1, 1919, discovery of a stricture of intestine by a long proctoscope. Operated upon September 2, 1919, by Dr. George H. Bunch, surgeon. Adhesions and stricture relieved.

After recovery treatment changed to injections of argyrol through proctoscope. Discharged from hospital October 1, 1919.

On account of the history of amebic dysentery the patient's stools were carefully examined for amebae, but after many examinations covering a period of about ten days no amebae were found. He had been given the usual course of medication for such a complaint without any benefit whatever. The bismuth salts and all astringent medication together with local treatment with argyrol were alike unsuccessful. It was deemed advisable to have a complete Roentgen-ray examination made of the gastro-intestinal tract; this was done and revealed

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*Read before the Jefferson County Medical Society.

obstruction involving the small intestine.

After the usual preliminary preparation he was operated upon March 20, 1920, with the following microscopic findings: A few spider web adhesions around the head of the colon; gall bladder normal; about six inches of the jejunum adherent to the abdominal wall anteriorly. This portion of the intestine was freed from its moorings, all raw surfaces covered with omentum and the abdomen closed.

The patient left the hospital in two weeks and for over a year succeeding the operation has remained well, gaining in weight, alvine evacuations normal and regular each day.

Since the advent of the Roentgen-ray the medical history of the gastro-intestinal tract must be revised. Many diseases which were formerly thought to be functional or neurotic in character are now found to have very marked foundations in fact or organic trouble for their existence. Mucous colitis, Osler says, "is a disease occurring more frequently in women than men, in the proportion of five or ten to one, not rarely present in hysterical or neurasthenic women." He further states "nutritional conditions, such as are met with in those of reduced strength and those having nervous diseases seem to play a predisposing role. Some authors regard the condition as an intestinal neurosis with excessive mucous formation (myxoneurosis)."

Here is one more disease formerly taught and thought to be essentially medical which must be placed in the domain of surgical possibility. To the writer's mind any organ which secretes day after day and month after month more than is normal for that particular organ, will sooner or later be the subject of organic disease. No epithelial glandular cell can be overworked without showing changes in its protoplasmic elements. These changes may be chemical or physiologic, and the output of such gland will depend on the metabolic activity of the sum total of its cellular elements. Of course, it must be recognized that, after all, the output is under nerve control, but nerve tissue responds only to stimulation, and the structure which the nerve supplies reproduces its kind. The intestinal tract is no exception, and an intestine which is irritated, or, in other words, stimulated sufficiently to produce more than a thin viscid mucus, is the subject of organic disease. The intestine is a hollow muscular organ and is subject to pain only when its lumen is dilated. The pain of intestinal obstruction is never at the site, but always above such obstruction, and is present only when gases produced by fermentation cannot find exit.

It is rare that adhesions cause any trouble with the function of the intestine until one end at least of such adhesion is fixed to an immovable object. Such was the condition in the case reported, the immovable object being the abdominal wall, the lumen of the intestine was impinged upon until there was partial obstruction, the mucous colitis being the end-result.

Medication could obviously have no effect, except in so much as it lessened fermentation, or the deitary was limited to such articles of food as could not ferment or occlude.

DISCUSSION:

Granville S. Hanes: An interesting feature in the case reported is that the patient had partial obstruction from adhesion of a section of the small intestine as a probable result of amebic infection.

Stricture of the large intestine may be produced by amebic infection, but such cases are seldom observed in this country; they occur in the tropics, where infection is virulent and the mucosa is intensively undermined or practically destroyed. Stricture cannot occur from amebic infection unless there is extensive ulceration. I have seen many cases of amebic infection, but have never noted any disposition of the intestine to contract and form stricture. I have never heard of amebic infection producing stricture of the small intestine. In cancer or syphilis involving the rectum or large gut there is more or less fibrous tissue formation and stricture is not uncommon. Stricture cannot occur from ulceration of the mucosa alone unless the process is very extensive.

Dr. Leavell states that when adhesions existing between the small intestine and the abdominal wall were separated the patient's diarrhea was relieved. The fact must not be forgotten that diarrhea, except the type which is due to diet, is nearly always due to pathology located somewhere in the colon; I do not understand how adhesion of a few inches of the small intestine to the abominal wall could have been responsible for the diarrhea in the case reported. It would be interesting to know just what caused the symptoms to disappear in this case. Would it be possible to relieve amebic infection by the operative procedure described?

As is well known, the amebic sometimes behaves in a most mysterious fashion. In certain instances the infection may seem incurable, yet the patient may improve or become perfectly well spontaneously. On the other hand, there are cases of amebic infection which can with difficulty be cured; this is probably due to the association of certain types of bacteria with the amebae. I saw last week a man who had been given various forms of treatment for amebic infection; he would appear cured for a period, then have a recurrence or exacerbation. He told me that he thought he was now entirely cured; "that he had been taking some kind of vaccine." Another man has been treated by myself and several other physicians for amebic infection; he has had the infection for fourteen years and is not yet relieved. He can be brought to the point where no ameba can be found and is free of diarrhea, then has a recurrence or exacerbation. As stated above, I have seen amebic dysentery cured without treatment—by change of climate, change of water, etc., and again it seems almost impossible to cure it.

In regard to mucous colitis: I wish to make the dogmatic statement that mucous colitis was never due to a neurosis; it is responsible for the neurosis. In every case of mucous colitis there is an infection of the mucous membrane of the colon, and as a consequence the patient may sooner or later become neurotic.

George A. Hendon: Dr. Leavell's case is interesting from several standpoints. As I understand it, a section of the small intestine was adherent to the abdominal wall. That may have been a potential cause of the obstruction. I would like to know what other evidence of obstruction was found at operation?

We know that obstruction rarely occurs where two coils of intestine are agglutinated, or where the intestine is adherent to the parietal peritoneum. I am not denying that obstruction is possible under such circumstances, but it must be exceedingly rare; obstruction from adhesions is due to the formation of bands which encircle the intestine. If obstruction was common from the cause mentioned by Dr. Leavell, it would be noted following almost every celiotomy, because intestinal adhesions usually occur under the abdominal incision.

I am glad Dr. Leavell reported this case, because I have been especially on the lookout for symptoms of intestinal obstruction. I do not mean terminal symptoms nor signs of approaching death, but symptoms by which one may recognize obstruction at a period when it may be relieved, and I am glad to add this one of intestinal irritation with the discharge of mucus. I can readily understand how obstruction might arise from constant irritation of the intestine, but had never thought of it in that connection before. We are very much in need at the present time of information concerning the early symptoms of intestinal obstruction, because patients so often reach the terminal stage before the condition is recognized. The discharge of mucus, the accumulation of gas, and other signs mentioned by Dr. Leavell are important additions to the symptomatology.

H. N. Leavell (closing): The most interesting features in the case reported have been cited by Dr. Hendon, and these could have been intensified considerably had I shown the Roentgenograms. The case was thoroughly studied from a medical standpoint, and one of the chief factors which assisted in the diagnosis was the Roentgenological investigation.

Certainly the amebae were not responsible for the condition of the patient at the time of operation nor for several months previously. As soon as the man took a morsel of food he would have increased peristalsis, ballooning of the abdomen, sometimes vomiting, and always after taking food he would have several alvine evacuations. On account of the dejections being mucus in character it was perfectly natural that the diagnosis of mucous colitis should have been made. It is a fact that there can be no discharge of mucus from the intestine unless there is some organic disease. If there is partial constriction of the intestine and sufficient irritation to produce mucous evacuations, then the intestine is overworked and subject to organic disease. Certainly mucous colitis is not neurotic in origin, and whether the neurosis appears before or after the intestinal disturbance is a matter of no particular importance. However, mucous colitis is mentioned in textbooks as a neurotic condition.

I reported this observation largely to demonstrate at least one case that might easily have been diagnosed as mucous colitis; in fact, was so diagnosed, which was caused by partial intestinal obstruction and not a neurosis. It is also interesting from the standpoint that if this be a case following celiotomy, why are there not a great many others of like character, If our celiotomy cases were closely watched, symptoms simulating those present in this case might be frequently noted. I was glad of the opportunity to demonstrate conclusively that this was nothing more nor less than post-operative diarrhea and not strictly speaking a mucous colitis.

The pathology existing in this instance was sufficient to obstruct the lumen of the intestine. No matter whether it involved one or all the coats, the fact remains that it did obstruct. Proximal to the obstruction there was dilatation as shown by the bismuth meal, and there was also pain; distal to the point of adhesion the intestine was almost flat. Pain, of course, would ensue just as soon as there was increased peristalsis with the formation of gas proximal to the obstruction.

Separation of the adhesions was not, of course, the entire factor concerned in the relief of this patient, but rather the bringing about of better circulation and allowing the muscular coat to resume control over the intestine at that point. When released the intestine was allowed to perform its function and the patient soon became well without a dose of medicine being administered. Prior to the operation he had from ten to thirty alvine evacuation each day; now he is having only one or two normal actions daily.

The case was not strictly speaking one of mucous colitis, but rather a diarrhea from excessive intestinal irritation due to partial obstruction.

THE DIAGNOSIS AND TREATMENT OF SOME OF THE CARDIAC ARRHYTHMIAS.*

By J. Rowan Morrison, Louisville.

About twelve years ago Sir James Mackenzie published his great work on "Diseases of the Heart," which did much to revolutionize the views on cardiac physiology and pathology. With the polygraph Mackenzie was able to show graphically the various actions of the different parts of the heart in relation to one another and this taken in connection with his long and careful methods of clinical investigation shed a new light on this whole subject. About the same time Einthoren brought out his string galvenometer perfected as a clinical instrument for the scientific study of the mechanism of the heart beat. These advances taken up by physiologists and clinicians and carefully worked out gave a new impetus, not before possible, to cardiology and made possible pharmacological studies not to be undertaken before this.

During these twelve years investigations of heart conditions have advanced by leaps and bounds. It is true that in some directions no doubt this has gone too far, but on the other hand I fear that in many instances the general practitioner, the doctor who sees most of the sick people, has not taken as full advantage of this knowledge as he could have done by a little application. I, for one, feel deeply indebted to these pioneers, for although time and opportunity have not permitted me to work in this line nearly as much as I should have liked to, I am sure that what time I have had to observe these newer methods and study the newer conceptions of cardiology have probably repaid the more than any other time spent in observation and study.

No doubt many of us say, "What's the use of all this new fangled stuff—its beyond me." I admit this is partly true, for not many of us will have the means to own an electrocardiograph or the patience to work with a polygraph, but by studying the work of masters in these lines we will acquaint ourselves much more fully with the newer concepts of cardiology and thus be able to interpret so many more of our cardiac cases accurately by ordinary means of clinical investigation which after all is what we are really after. In a great many cases careful clinical investigations without any graphic instrument will avail if the primary concepts of heart disease are understood. In many an accurate diagnosis cannot be made without a polygraph, but these instruments even now are not rare in larger communities and will become less rare as time goes on. In certain conditions we need the electrocardiagraph to make an accurate diagnosis, and, if available, this is a much less time-consuming method. But the point I wish to make is that if we understand the underlying principles we can go very far toward improving our diagnosis of heart disease.

Sinus irregularity is called respiratory irregularity, because the heart beats more rapidly during inspiration than during expiration. This can be distinguished more readily to listening to the heart than by feeling the pulse, and may not be detected when present unless the patient breathes deeply and slowly. The slowing is due to the act of breathing stimulating the vagus nerve, thereby causing a slowing of the whole heart. This form of arrhythmia is usually found in the young and is practically always without serious import. It frequently follows acute fevers and is considered by Mackenzie to indicate that the heart has come through the attack intact.

This form of arrhythmia formerly caused considerable concern to physicians before it was fully explained. Even now we sometimes come upon a young individual greatly handicapped in development because the parent and physician are over-anxious because of this type of irregularity. By proper exercise and development the patient soon becomes normal.

Extrasystoles or premature beats may be either of auricular or ventricular origin. With the polygraph or electrocardiograph they can be readily detected. Clinically they can usually be detected by feeling the pulse or listening to the heart beat. They make the cardiac rhythm intermittent and produce, if occurring regularly after one normal beat, the so-called pulsus bigeminus. In the pulse with extrasystoles the normal beat is followed by the lesser beat followed by a pause, and then a beat somewhat longer than the previous normal beat, or instead of the lesser beat following the normal there may be a pause followed by a longer beat. The premature beats may follow every normal beat, or every two, three or four, or may occur irregularly. The pulse beat in extrasystole differs from auricular fibrillation in that the irregularity breaks in on an otherwise regular rhythm, instead of pulsus perpetus irregularis.

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*Read before the Jefferson County Medical Society.

Thomas Lewis points out that in extrasystoles the irregularity is usually stopped or diminished by exercise, while in auricular fibrillation it is increased.

Extrasystoles occur most frequently in attacks of indigestion and were formerly thought to be due to pressure on the heart by gas. A more modern view is that some toxin produces these as they occur frequently after over-indulgence in coffee, tea, tobacco and such toxins. They also frequently occur with acute inflammation of the gall bladder, in onset and crises of acute catarrhal diseases, as tonsillitis and "grippe." Digitalis can also produce this irregularity.

Extrasystoles are usually transient and cease when their cause has been removed, however, they may accompany severe heart involvement, so that in prognosis we must not consider simply the presence of extrasystoles, but presence or absence of cardiac failure.

The treatment consists in removing the cause, where this can be done. In case of indigestion and overloaded intestine, diet and simple laxatives will often prove efficacious. In case of excitement from coffee, tobacco and such toxics discontinuance or regulation will produce results. Simple sedatives, as bromides are often indicated. Unless there is other evidence of cardiac failure there is no indication for digitalis. Simple hygienic regulations are usually effective.

Auricular fibrillation, or as first described by Mackenzie, paralysis of the auricle, occurs when instead of the impulse being conducted in an orderly manner from the sinoauricular node through the auricular ventricular bundle, thus producing a regular contraction of the ventricle following the auricular contraction, a condition arises in the auricle which causes this muscle to act as a quivering mass of fibres in place of contracting as a whole.

The auricular ventricular conduction system is bombarded by numerous irregular impulses, only some of which pass through and excite the ventricle to an irregular response.

In typical auricular fibrillation there is complete ventricular irregularity both in rhythm and force.

Polygraphic tracings in this condition show the ventricular waves to be irregular in time, and to vary much in size. Most significant is the fact that we find no auricular waves at all. In other words, the evidence of auricular paralysis as described by Mackenzie. Likewise in electrocardiographic tracings the ventricular deviations, the R waves are irregular in form and time and there is an absence of auricular deviations or P waves, and instead of the regular P waves there are frequently undulations of varying size, representing the fibrillations at the rate of between 350 and 900 per minute.

In quite a number of cases it is most important to use these graphic methods as by ordinary clinical means it is with great difficulty that a diagnosis can be made. The electrocardiagraph, when available, offers the most accurate method, and is not as time-consuming as the use of the polygraph. However, in this paper the point I wish to emphasize is the clinical recognition of this condition. In the first place, it is of the utmost importance that we observe the heart rate both at the apex and the wrist. At the apex it will be noted to be completely irregular, what might be called helter skelter, strong and weak, fast and slow, rarely two beats alike. Many of the weaker beats felt or heard at the apex do not reach the pulse at the wrist, and very often there is a distinct deficit in the pulse beat noted here. This is of distinct advantage in making out this form of irregularity, also the pulse, especially if there is decomposition—is usually rapid. This makes the clinical recognition easier. When the heart is slow or under digitalis the clinical recognition may be impossible.

If there has been a presystolic murmur previously noted in the patient this will not be heard, as there is not sufficient auricular contraction to produce it.

In trying to diagnose this form of irregularity, we should always remember that extrasystoles usually disappear after exercise, even in many cases after slight exercise, as raising the arms a number of times, or bending over several times, whereas, in auricular fibrillation the irregularity is increased.

When we remember that three-quarters of the cardiac irregularities are auricular fibrillation and that 60 to 70 per cent of all cases of serious heart failure with dropsy owe the failure to this condition, or are aggravated by it, we readily see how important it is for us to try and diagnose it, especially as it is here that digitalis properly administered offers the greatest relief.

Auricular fibrillation occurs most frequently in the course of cardiosclerosis of the aged; here, if decompensation has gone on to any considerable extent the irregularity usually becomes permanent, persisting even when the decompensation has apparently been overcome. However, in some cases after rest and digitalization it may disappear, at least until the symptoms of heart failure again reappear.

In the next place it is most frequently associated with mitral stenosis, as here the auricle has much more work to do than in the other forms of valvular disease. This irregularity may come on temporarily in pneumonia, and other febrile conditions of infectious origin, as diphtheria and typhoid fever and is an indication of serious heart involvement. It disappears as cardiac improvement occurs.

It also occurs in the course of toxic goiters with heart involvement. This arrhythmia is permanent or temporary, depending on whether or not the heart muscle responds to treatment, such as rest, and removal of the cause of the loss of cardiac reserve.

Prophylaxis should play an important part in preventing this condition. Children with bad tonsils and adenoids should have them removed before the heart is damaged. After scarlet fever, measles, and the other diseases of childhood a careful examination of the heart and kidneys should be made several times a year to determine if any damage has been done during the attack that has been overlooked at the time.

The knowledge that an individual has a damaged heart should not cause the physician to discourage them from leading a normal life with plenty of exercise, but would permit him to formulate rules that would increase the cardiac reserve instead of overcoming it.

So also by immunizing susceptible children against diphtheria with toxin-antitoxin many a damaged heart could be prevented.

Then, too, as the individual grows older, when the times for the process of decay comes on a proper supervision of teeth and other organs liable to harbor infections, should be carefully looked into, as should the diet.

Where the patient has had one or more attacks with the heart, with loss of compensation, careful regulations of work, exercise, rest, sleep and diet will have a most salutory effect.

The actual treatment of auricular fibrillation depends much on the state of compensation or decompensation of the heart. It is said that quinidin administered for a few doses over a day or so will cause this irregularity to disappear. I have never had occasion to try this remedy.

If the pulse is rapid and the heart decompensated, with rest produced by the use of morphine if need be, light diet and the proper use of digitalis it is remarkable how these cases improve. Eggleston says: "We know that the only large group of cases in which digitalis produces marked reduction in the heart rate is that of auricular fibrillation."

With the patient at rest we must select a dependable preparation of digitalis. Either one that has been tested in a pharmacological laboratory or one we know to be potent, and this must be given for the physiological effect.

Again Eggleston says: "In the absence of satisfactory therapeutic response one can be certain that digitalis has been given a fair trial only when it has been administered to the point of production of one or more of the criteria of minor intoxication." Some of these symptoms of intoxication are:

"1. Nausea or vomiting (except when due to splanchnic congestion and present before treatment is begun).

"2. Fall of heart rate (not pulse rate) to or below 60 a minute.

"3. Appearance of frequent premature contractions; of definite heart block; of marked phasic arrhythmia, or of coupled rhythm."

"In cases which respond favorably there is a group of phenomena, both subjective and objective, which indicate more or less effective digitalization and which may be embraced by the term, 'Clinical Improvement." These include all such definite evidences of improvement in the circulation as relief or disappearance of the patient's respiratory symptoms; relief of cardiac or precordial pain; disappearance of the nausea due to splanchnic congestion; the production of diuresis; diminition or disappearance of evidences of congestion of the liver; fall in pulse rate; decreased degree of irregularity in auricular fibrillation together with reduction in the pulse deficit, or its disappearance."

When the case is urgent and no digitalis has been previously administered it is best to use the so-called large dose method of digitalization, which usually takes from one to two days to produce this effect. By this method 6 to 7 grains of powdered leaf or one drachm of tincture are given every six hours for twenty-four hours and on the second day reduced to half this dose, and this continued under most careful observation until digitalization or toxic symptoms are produced.

Where time is not so much a factor the small dose method can be used. This requires four to six days to produce digitalization. With poor specimens of digitalis it may be impossible to digitalize the patient or it may take ten days or longer. When the patient is in the hospital where every modern convenience is to be had, no doubt the best method to use is the so-called "body weight" method as described by Eggleston.

Time prevents my going into this method in detail, but I would advise all who are not thoroughly familiar with this method to read the article of Dr. Cary Eggleston in the J. A. M. A., Volume 74, page 733.

When the heart has been digitalized, and the proper effect produced by digitalis, the drug should be discontinued or used in very small doses until it is found by observation what will be the proper dose to continue to use in the particular patient if any digitalis has to be given at all. Cany Robinson and others have found that the effects of digitalis have lasted for a period of time up to ten days when the patient has been thoroughly digitalized.

My observation has led me to know that many excellent physicians fail to get the effect in heart cases from digitalis that they should get because they do not use this drug in sufficient quantities to digitalize the heart. Time and again I have seen patients in consultation where when the doctor in charge got the idea firmly fixed in his mind what the digitalis was expected to do, and learned its proper use, that his patient has ceased to need a consultant, and has gotten along in excellent shape with the regular doctor when he had acquired a proper knowledge of digitalis.

When decompensation has been overcome, or if no decomposition has existed, our effort should be to keep the pulse rate at the apex between 70 and 80. This may require some digitalis all the time, or may require some digitalis only occasionally. The point being to regulate the rate about this figure. Besides this, we should use such hygienic measures as simple food, plenty of rest, and graduated exercise, and also avoidance of overstrain.

AURICULAR FLUTTER.

This is a condition in which the auricles beat rapidly and regularly from 225 to 350 a minute; since the ventricle cannot respond at a like rate, heart block incomplete or complete results. If the block be incomplete at a 2.1, 3.1 or 4.1 ratio, the pulse remains regular, the rate depending on the ratio. If there is a constantly changing auriculo-ventricular ratio the pulse will be irregular.

The recognition by polygraph is frequently very difficult or impossible, as the A waves are often small or disturbed by respiration.

The electrocardiograph demonstrates it much better as it is much easier to differentiate the ratio of auricular deviation (P waves) from the ventricular deviations.

Clinically an absolute diagnosis is practically impossible unless the jugular pulse is so distinct that it can be accurately counted and compared to the apex rate.

Auricular flutter is most frequently seen in the cardiac decompensation of older people. It may, however, occur in acute endocarditis and occasionally be found in paroxysmal tachycardia.

In decompensated cases of cardiosclerosis digitalis properly administered is the best remedy. The administration is usually followed by auricular fibrillation and then if the digitalis is discontinued the normal rhythm may be resumed.

DISCUSSION:

F. C. Askenstedt: Dr. Morrison's papers are always up-to-date and never lack interest. Sinus irregularity, as the essayst has mentioned, is a normal manifestation, somtimes mistaken for a serious condition. Mackenzie mentions the case of a boy who for years had been under treatment for heart irregularity, which was nothing but this normal youth irregularity. He points out the diagnostic value of sinus irregularity in cases after fever, and states that he has never yet found it manifested in cases of acute endocarditis or its convalescence. We have all been puzzled in cases of fever, especially rheumatic fever, when a systolic heart murmur developed, to decide whether this was a purely functional murmur or not. If located in the pulmonary area we would be inclined to recognize it as accidental, but if in the mitral region, then what? If during the convalescence a sinus irregularity is evident, endocarditis may be excluded. Old cases of valvular disease may, however, be associated with sinus irregularity.

Dr. Morrison spoke of extrasystoles. These irregularities have recently received a better name. They are not really extrasystoles because the heart does not contract any oftener than it would otherwise, but the contraction occurs too early. The term that is now adopted is "premature contraction." There is now less disposition than formerly to regard any of these irregularities of nervous origin. They may be of intrinsic or extrinsic origin—due to some lesion in the heart itself, or arises from some outside irritant acting directly upon the heart. As an example of an extrinsic causes may be mentioned the pressure from a distended stomach on an atonic heart, which is dilated and its myocardium weak and flabby. The pressure upon the myocardium renders the under wall of the heart concave instead of convex—the so-called "consertina heart"—and this condition is very apt to give rise to premature contractions. Pregnancy may do the same. Another extrinsic cause are pericardial adhesions, which condition is suspected if the premature contractions occur while the patient is lying and disappear on his assuming the upright posture. As a rule, digitalis has no influence upon extrasystoles. To this I have noted a marked exception, a case presenting double extrasystoles after every second normal heart beat. Here the premature contractions ceased gradually during the administration of digitalis and as gradually returned after its withdrawal. Bigeminal pulse, a premature contraction following every normal beat, is a frequent result of over-dosing with digitalis, and when so occurring demands a discontinuance of the drug.

Auricular fibrillation is the most commonly occurring irregularity and appears in most cases before death. It is frequently paroxysmal in character, and as it is of all cardiac irregularities the one most amenable to treatment its recognition is important. Fortunately most of these cases can now be recognized without the use of a polygraph or an electrocardiograph, which instruments have now largely served their purpose by revealing characteristic syndromes of cardiac irregularities. Mackenzie himself seldom uses these instruments nowadays, wishing to impress upon the general practitioner the paramount importance of properly developing his unaided senses of observation. A pulse rate of about 120, with a very irregular pulse, proves almost always a case of auricular fibrillation, especially if, as Dr. Morrison has mentioned, the systoles heard at the apex of the heart are 15-20 more in number than the pulse rate felt at the wrist. Auricular fibrillation may also occur with a much lower pulse rate, and thus escape detection, but, fortunately, in this form it will do but little harm. With a rapid heart action, on the contrary, the irregular ventricular diastoles are of too brief duration to allow proper filling of the heart, and circulation suffers. Large doses of digitalis will reduce the pulse rate, but does not entirely control the irregularity inasmuch as fibrillation of the auricles continues until spontaneously arrested. Digitalis should be pushed until the pulse rate is brought down to 70 or 80 per minute, and if kept there by suitable dosage the patient may live for many years.

An irregularity which the essayist did not mention is that of heart block. It is important to differentiate it from premature contraction. In premature contraction the pulse beat is sometimes so small that it cannot be felt at the wrist —there is an apparent intermission. The question then is, is the condition one of premature contraction, or is there partial heart block? The easiest way to differentiate the two conditions is to auscultate the heart during the intermission. If there is no contraction of the ventricle during the intermission we may infer that we have to deal with a case of heart block. If a weak contraction is heard shortly after the normal first sound it is a premature contraction. In cases of parial heart block it is fraught with danger to administer digitalis in physiological doses, for the impaired conductivity of the bundle of His may be intensified by the physiological effect of digitalis and result in the production of complete heart block and Stokes-Adams syndrome, possibly with fatal effect.

R. Hayes Davis: I want to congratulate Dr. Morrison on his excellent paper; he has covered the subject of cardiac arrhythmias most completely. This is a very timely subject, because at the present time many cardiac irregularities are not as thoroughly investigated as they might be, owing to the fact that so many advances have been made within a short period of time.

I have been working with the polygraph for three or four years, and one of the greatest features of this instrument, as Dr. Askenstedt has just emphasized, is that by its use we have become more familiar with cardiac lesions. When one is working with graphic methods one naturally becomes more familiar with any abnormality that may exist, something which is very difficult to acquire by reading text books. Especially is this true with the polygraph which is not a very easy instrument to manipulate, and in some instances it seems almost impossible to secure satisfactory readings. However, after one has become sufficiently familiar with the instrument to acquire the knowledge that should be acquired, then undoubtedly the majority of the cardiac lesions can be diagnosed by means of the ordinary clinical methods instead of using instruments. There are, of course, exceptions to this rule; there are some cases where the polygraph or electrocardiograph must be used, but fortunately in the vast majority of cases by following the points mentioned by Dr. Askenstedt the diagnosis can be accurately made.

One of the principal uses of the polygraph, to my mind, is in desperate cases where digitalis has to be pushed to the limit. When I was a student under Prof. H. C. Wood he emphasized the point that in desperate cases oftentimes lives could be saved by pushing digitalis in enormous doses which then was thought to be a dangerous thing to do. He mentioned the point, however, that in doing this there was always danger of sudden death. They did not know the reason for the sudden death at that time, but we now know that when digitalis is pushed to the limit the most frequent causes of sudden death is the double rhythm as described by Dr. Morrison. Whenever a double rhythm develops the patient is likely to die at any moment. This is not always easy to detect, and, in fact, is sometimes practically impossible, by the ordinary methods of clinical examination. So in these desperate cases daily polygraphic readings may be the means of saving a number of lives.

Another thing that might be mentioned is the fact that Dr. Morrison in his paper spoke of only one drug for use in the treatment of heart diseases. At the present time, along with rest, regulated exercise, diet, etc., a few cases are treated with strychnine, caffeine, sparteine and various other drugs. As a matter of fact, however, we know these remedies have very little effect on the heart. Digitalis is practically the only drug that can be successfully used in the treatment of cardiac disease. The treatment, therefore, resolves itself into making an accurate diagnosis, careful and scientific administration of digitalis, together with proper rest and regulated exercise.

In prescribing rest in the treatment of cardiac cases the mistakes has frequently been made of keeping the patient in bed too long. Regulated exercise is just as important as rest and patients are often instructed to take only a few steps or are rolled around in a chair much longer than they should be. When this is done the heart muscle, just as any other muscle long unused is likely to undergo progressive degeneration. The heart muscle must be exercised just like any other muscle, but it must be exercised in a scientific and conservative way. The patient must be permitted to take exercise, but must cease short of strain or tire on his reserve power. If he is kept within that limit exercise can be gradually increased and life may often be thus prolonged for many years.

C. W. Dowden: After all has been said and done we must remember that the heart is only just as strong as its myocardium. About ten years ago I heard a most elaborate paper read on diseases of the heart and was filled with awe because of the little knowledge I possessed on the subject of cardiac lesions, particularly auricular fibrillation, auricular flutter, etc. At that time I purchased one of the most expensive polygraphs that could be obtained, and I now have hundreds of beautiful tracings of the various arrhythmias, extrasystoles and other irregularities; but after doing this and getting all the data together, I was still short of the thing I wanted to know, i. e., what the heart could do and what it was capable of doing under certain circumstances.

I believe the most valuable information can be secured by demonstrating what the heart is able to do under exercise and under the influence of digitalis. Exercise and digitalis are the two greatest things we have as diagnostic aids in cardiac disease, and I believe they are the two greatest things we have in treating heart disease after the diagnosis has been made. I do not care what the irregularity may be, digitalis is going to be administered in many instances anyway, therefore I see no use of wasting time making polygraphic or electrocardiographic tracings as a routine. That may sound absurd, but it is a point I patricularly wish to make in this connection.

During the meeting of the Southern Medical Association in Louisville I happened to have under observation two or three severe cases of cardiac irregularity, one patient with heart block and auricular flutter. I asked Dr. Henry Christian to see this latter patient with me. I had used digitalis cautiously in small doses. I asked Dr. Christian if he thought we ought to have some electrocardiographic or polygraphic tracings made, and he replied, "What's the use of doing that; you are going to give the patient digitalis anyway; it is one of the very best diagnostic agents we have today; most patients get better under this plan of treatment; those who do not improve will become worse within a few hours, and digitalis can be discontinued when this point is determined." The dose of digitalis was increased and the patient promptly began to improve. I do not believe there is any safe index by which one can judge whether digitalis is contraindicated. The best plan is to give digitalis for a while and watch the effect produced.

I do not believe enough importance has been attached to the value of exercise in the treatment of cardiac disease. So long as there remains any cardiac reserve there are indications for moderate exercise. If a normal individual is made to run three or four blocks he becomes breathless because he has exhausted his cardiac reserve by the strenuous exercise. A man with cardiac disease has only a certain amount of reserve force. Another individual will exhaust his cardiac reserve by walking a few steps across the floor, and he will be breathless, like the man who ran two or three blocks. The way to increase the cardiac reserve is by increasing myocardial function or power by carefully regulated exercise. Even individuals confined to bed can raise their arms or limbs a certain number of times and in that way secure the requisite amount of exercise. In prescribing exercise to increase myocardial power care must be used not to exhaust the cardiac reserve. Digitalis is the most valuable agent known for this purpose. Of course, in auricular fibrillation the cardiac reserve is already exhausted and the patient must have absolute rest for the time being. Digitalis and exercise serve a double purpose in heart cases, i. e., they are the best diagnostic aids we have, and they are also of therapeutic value.

I would not for a moment decry the use of the polygraph or the electrocardiograph, but after all they merely give us indications as to the conditions present without giving any idea as to what the heart can do, and that is what we want to know. We want to know what the patient can do without exhausting his cardiac reserve, and the work he can do without damage. These facts can better be determined, in my opinion, by the judicious use of digitalis and exercise than by graphic methods.

R. Alexander Bate: There are many phases of the subject of cardiac arrhythmias suggested by Dr. Morrison's paper that I would like to discuss.

In regard to cardiac arrhythmia observed in gall bladder disease: This fact was observed many years ago and reported which I believe gave us at least a slight conception as to the cause of many of these cases of arrhythmia. I will say, however, that the causes of cardiac arrhythmia are almost as multiple as the causes of cutaneous eruptions and each type should be considered absolutely from an individual standpoint. I have seen cardiac arrythmia occurring in gall stone cases subside soon after passage of the biliary concretions. The observation may be of some interest that bile is secreted under lower pressure than that usually existing in ordinary blood pressure. I believe there is a very interesting connection between the balance of these two fluids, and just what part the portal vein plays in this would be of great service could the facts be ascertained. We know that in all these cases there is a passive congestion of the abdominal viscera which becomes more marked as the cardiac irregularity progresses. Many instances of arrhythmia have been observed during the course of gall bladder disease. Just what part the gall bladder itself plays in the process we do not know, but certainly there are indications of inactivity on the part of the liver.

In regard to the treatment of cardiac arrhythmia and the use of digitalis: I believe there are certain specific indications for the administration of digitalis, and, as Dr. Morrison has said, in some cases it should be avoided. Properly used it is one of the most valuable remedial agents known, but I must confess that I feel much safer when pituitrin is used in connection with digitalis. In nearly all cases there is lack of tone of the whole vascular system and much benefit may be expected from combining pituitrin with digitalis. Pituitrin acts as a tonic to the myocardium as well as the general system.

E. F. Horine: There are only two points I want to emphasize in this discussion. The first one is in regard to focal infection in its relation to the production of cardiac arrhythmia. I have been following this subject carefully for several years and am led to believe that premature contractions can be traced frequently to a focus of infection either in the mouth, gall bladder or elsewhere in the body.

The second point I desire to mention and with which I must take issue with the essayist is the use of digitalis in every type of cardiac disease which he mentioned. There are cases in which digitalis is not indicated. I am aware that Dr. Morrison could not be specific in all of his statements in covering such a broad subject and must needs generalize. Diphtheria was mentioned as a cause for cardiac complications and in generalizing the use of digitalis was mentioned without stating possible contraindications. I believe that Dr. Morrison will agree that myocardial involvement is frequently seen following diphtheria and in this connection I want to emphasize the fact that diphtheria toxin has the same effect on the myocardium as digitalis. If digitalis is administered in post-diphtheritic cardiac complications the patient is likely to be made worse rather than better. Absolute rest, ice packs and general hygienic measures are indicated in post-diphtheritic heart complications rather than the administration of digitalis.

I recognize the wonderful value of digitalis in heart therapy particularly in auricular fibrillation, but it is absolutely contraindicated in the heart complications following diphtheria for the reason stated.

M. Flexner: I would like to endorse the statement made by the essayist in his paper in regard to the use of digitalis. Formerly we were more interested in determining the proper dosage of digitalis than in its effect. Recently we have become more interested in the effect of this drug. Now we give large doses early until the patient becomes thoroughly digitalized, then smaller doses are continued as long as necessary. The dose of the liquid forms especially are uncertain, as they deteriorate on keeping. For that reason some of the dried forms are preferable.

Digitan, or the French preparation, Nativelle's crystallized digitaline, are probably the safest and most dependable forms of digitalis to use. The ordinary tincture of digitalis not recently standardized is unsuitable because the dose is unknown and one cannot tell where to start.

One form of cardiac irregularity which Dr. Morrison mentioned but did not emphasize is paroxysmal tachycardia. That is one type of irregularity in which digitalis is not indicated. It occurs as a rule in persons over fifty who have some digestive disturbance. During a paroxysm the heart beats may suddenly advance from 72 to 150 or 160. Just what precipitates an attack cannot always be determined, but as a rule it is associated with some dietetic indiscretion. I have had two cases of this type under observation during the last year. In both of them I have been able to stop the paroxysms by deep pressure on the carotid artery over the carotid tubercle. By stimulating the vagus nerve in this way the heart action became normal within fifteen minutes.

H. N. Leavell: One of the speakers mentioned the fact that digitalis would produce auricular flutter, or at least irregularity of the heart's action. I know that to be true, as I am able to testify personally, having had some experience in that direction, and also having had patients with auricular flutter produced by the administration of digitalis. This type of irregularity is described in text books as delirium cordis, which I believe is a very good name for it, as the heart does get into a state of delirium.

A few years ago I had the opportunity of taking a private course of instruction in cardiac diseases under an Eastern professor, and the sum and substance of what was gathered during that course was: Digitalis, epsom salts, rest and exercise. Epsom salts in the morning, a moderate amount of rest, a reasonable amount of exercise, and enough digitalis. The dose of digitalis was never mentioned, the instructions were to give enough, this to be determined by reduction in cardiac irregularity and increasing of the systolic pressure. The action of digitalis is to slow the heart's action and allows the heart to fill itself with blood. By increasing the systolic pressure the heart is better able to empty itself, more blood is thus received from the coronary artery for nourishment of the muscle, and when there is sufficient blood in the cardiac walls the nervous apparatus will sooner or later regulate itself. This has been found true in actual application. Of course, we know the effect of digitalis on the vagus nerve, we know its effect in directing impulses through the auricular-ventricular node, we know that it has not only a local effect on the heart muscle, but on the vagus nerve in slowing the heart's action, consequently the period of rest is correspondingly increased. Naturally if the heart gets more time to rest improvement may be expected.

I am in perfect accord with the statement made by Dr. Dowden, that after all it is the myocardium which is of the most importance. We must consider that there are five requisites for normal cardiac activity, and it matters not which one is deficient in its action digitalis fulfills all the indications as a remedial measure. It is a cardiac stimulant, because it increases the nerve supply and the controlling nerve impulses, it fills the heart with blood, which is one of the requisites of normal cardiac activity, it slows the heart and gives it more rest, and it also increases the circulation throughout the body. So digitalis, no matter what preparation is used, should be administered for its effect and it must be given early. The effect of digitalis lasts for a week or ten days after the drug is discontinued; this is a point which must be remembered. The reminder also seems pertinent that the maximum effect of the drug is not secured until forty-eight hours to three days after the primary administration.

J. Rowan Morrison (closing): I appreciate very much the liberal discussion accorded my imperfect paper. I did not attempt to cover the entire field included in cardiac arrhythmias, and that was the reason for limiting the title of my paper to "The Diagnosis and Treatment of Some of the Cardiac Arrhythmias."

In regard to Dr. Horine's remarks: He is certainly right, we should not give digitalis in diphtheria, because the effect of diphtheria toxin and digitalis on the heart is practically the same. This fact was emphasized in a paper read last year by Dr. Hugh McCulloch, of St. Louis, at the Southern Medical Association. I mention this first because I fear I may have created a false impression in speaking of diphtheria. My statement was that I believed, from a prophylactic standpoint, many cases of damaged heart from diphtheria could be prevented if the toxin-antitoxin method was more generally used, immunizing children against diphtheria when they were found susceptible to the disease by use of the Shick test.

Referring to the remarks of Dr. Dowden: I agree with him that the thing to do is to ascertain the condition of the myocardium and the amount of reserve force, that is one of the essential features. The way to get these facts is by the use of exercise, rest, and the administration of digitalis, but I happened to choose for my subject the arrhythmias instead of heart disease in general.

Sinus arrhythmia, as mentioned by Dr. Askenstedt, is not a dangerous irregularity. This was emphasized sufficiently in my paper. Premature contractions or extrasystoles do not by any means always indicate a serious condition of the patient, although in some cases they may accompany heart failure.

Since studying cardiac conditions with the polygraph and electrocardiograph I have found it rather easy in many cases to make the diagnosis of the various types of arrhythmias by ordinary clinical methods. It is true, as Dr. Dowden has stated, that these instruments merely show the condition present, but do not indicate to us the state of the cardiac muscle nor the amount of cardiac reserve. This must be determined by exercise, rest, and digitalis.

Dr. Flexner is correct, there is no proper dose of digitalis, it is the effect which we want regardless of the size of the dose required to produce the requisite effect. When this has been secured the dose may be reduced or the drug discontinued according to the indications. Simply enough digitalis should be given to bring the heart beats to between 70 and 80 within a few days, then the drug should be either greatly reduced in amount or discontinued.

It need not be expected that the administration of digitalis will produce a normal cardiac rhythm in cases of auricular fibrillation. Digitalis will cause a slowing of the heart's action, but the patient will still have auricular fibrillation. That is the history of the majority of these cases. The polygraph or electrocardiograph will show that auricular fibrillation is still present, although the pulse is slow. By the judicious use of rest, exercise and digitalis many patients with auricular fibrillation may be kept comfortable and their lives prolonged sometimes for many years.

TORSION OF THE OMENTUM—CASE REPORT.*

By Frank Ritter, Louisville.

Patient, S. K., male, white, aged forty-one years; married, the father of four children; occupation, grocer. Family history negative for cancer and tuberculosis. Past history: no acute illness. Eight years ago herniotomy (right side) and hemorrhoidectomy; recovery uneventful and patient has enjoyed good health since.

Present history: The patient was seen March 3, 1920, suffering from excruciating pain throughout abdomen, especially in lower portion. At this time pain was becoming localized in right side. He had been suffering pain for thirty-six hours, but it was now more severe than before. There was no vomiting though he complained of nausea throughout the attack. Urination frequent, a small amount of urine being voided each time. He was not constipated, the alvine evacuations being regular during the attack.

Examination showed a well-nourished and apparently healthy individual. He was in great pain, knees flexed, hands holding abdomen, expression anxious. Tongue coated, dry in center; temperature 101° F., pulse 72 and intermittent; respiration 24. Skin dry and hot, chilly sensations, but no distinct chill.

The abdomen was not distended, but there was ridigity on both sides, greatest on the right. The patient complained of great pain over the entire abdomen which was intensified by intermittent colicky pains in right lower quadrant. On palpation the abdomen was extremely tender over McBurney's point, but no mass could be detected.

Urinalysis negative except concentration and seven or eight pus cells to 1-6 field; no blood. Blood analysis: erythrocytes 5,200,000; leucocytes 16,000; polymorphonuclears, 82%; small lymphocytes, 15; large lymphocytes, 1; eosinophiles, 1.

The patient was removed to St. Joseph's Infirmary the same day and given the usual preparation for abdominal exploration. He was taken to the operating room with the tentative diagnosis of acute appendicitis. Under gas-ether anesthesia (Dr. Heim) the abdomen was opened by a four-inch right rectus (Battle) incision. On incising the peritoneum free sero-sanguineous fluid was encountered in the cavity. The appendix was lifted from the abdomen and found free from binding adhesions; it was large and moderately distended, slightly injected and its blood vessels, especially the veins of the meso-appendix, were engorged. The condition of the appendix could not have caused the symptoms from which the patient was suffering. The appendix was removed.

Further exploration revealed the gall bladder free from adhesions, thin-walled, emptying on pressure, and apparently normal. There were no adhesions in the region of the duodenum and stomach. Coming downward with the hand within the abdomen a hard movable mass was encountered which was easily delivered through the incision. Examination showed this to be the omentum with its free end twisted by four or five complete corkscrew turns into a cylindrical tapering mass about six inches long and one and a half inches in diameter. Efforts to untwist same were unsuccessful. It was covered with inflammatory exudate, and on separating the corkscrew turns beginning gangrene and necrosis were noted. The mass was amputated after ligating the healthy omentum proximal thereto. The abdominal incision was closed with catgut and silkworm gut sutures without drainage.

The patient made an uneventful recovery, his excruciating pains being relieved at once. He left the hospital in a short while and has remained well since.

DISCUSSION:

H. N. Leavell: Two or three years ago I had occasion to investigate the subject of omental tumors and found that primary cancers of the omentum were extremely rare; it is one of the rarest growths which occurs within the abdomen. While listening to Dr. Ritter's report it occurred to me that omental torsion might have been produced by a tumor. He did not state whether the mass which he removed was a tumefaction or merely torsion of the omentum. The fact that tumors of the omentum are so rare, and that torsions of the omentum are consequently of greater rarity, it would seem that primarily in this case there may have been an omental tumor which subsequently became twisted upon itself.

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*Read before the Jefferson County Medical Society.

I hope in closing Dr. Ritter will tell us something more about the case.

Frank Ritter (closing): I do not know what caused the omental torsion in the case reported unless it resulted from the herniotomy performed eight years before the patient came under my observation. This is the only possible explanation which occurs to me. When the surgeon returned the omentum to the abdominal cavity a partial twist might have existed without his knowledge, and in that way started the complete torsion which was found present.

As stated in my report, the man recovered promptly from the operation and has had no abdominal pain since.

PLACENTA PREVIA—REPORT OF TWO CASES.*

By Edward Speidel, Louisville.

Hemorrhage from the vagina in the latter months of pregnancy is such an abnormal symptom that it should at once call the attention of the attending physician to the two grave conditions that generally are responsible for the condition, viz., abruptio placenta; that is, premature separation of a normally implanted placenta, or placenta previa.

The symptoms and signs of the two conditions are so absolutely different that there is little chance of error in making the diagnosis.

In abruptio placenta you have evidences of external hemorrhage or signs of internal hemorrhage following a sharp pain. The most important diagnostic point in placenta previa is the sudden profuse hemorrhage without pain in the latter months of pregnancy.

There should be no doubt about the diagnosis when these symptoms are present and there should be no doubt as to the treatment. All of the authorities in obstetrics are in accord that immediate delivery is the only safe treatment for placenta previa.

Only under ideal conditions in a hospital with well trained nurses is it ever even advisable to temporize in order to bring a premature baby nearer viability.

In spite of these definite symptoms and indications for prompt treatment we still meet rather frequently with cases that have been allowed to bleed until the patient is almost exsanguinated.

The following two cases are reported to illustrate the methods that can be adopted in late cases of placenta previa after repeated hemorrhages.

The first patient was a colored woman pregnant for the second time who arrived at the City Hospital on a Sunday afternoon and was first seen at 8 p. m., May 8, 1921, with the following history: 26 years of age, temperature 98, pulse 128.

She was delivered of a dead baby by forceps one year ago. Her last menstrual period was late in July, 1920. Patient had been bleeding for two weeks before entering the hospital.

A phyisician called in the day before finally realized the seriousness of her condition and brought her to the City Hospital. The patient was extremely anemic, actually looked white.

Abdominal examination showed the fetus with a fetal heart sound of 150 in a left occipito anterior position. A vaginal examination showed one finger dilatation of the cervix with the placenta in all directions.

In consequence of the fact that the cervix was only slightly dilated, and the patient was delivered with difficulty per vaginam only a year ago, Cesarean section was decided upon, as immediate delivery was necessary to save the life of the mother as well as the child.

It was considered unwise even to attempt a Cesarean unless a blood transfusion could be performed primarily.

Fortunately the husband typed well as a donor, and a high Cesarean operation was performed at midnight, after Dr. Ellers had transfused 500 cc. of the husband's blood into the patient by the citrate method.

The baby weighed 9 3-4 pounds at birth and the placenta was partially over-lapping the internal os. Very little blood was lost during the operation and the patient was returned to bed in good condition.

As may be expected in cases of placenta previa that have been examined a number of times before admission to the hospital, a puerperal infection mainfested itself after the third day. On May 20 a second blood transfusion of 500 cc. was given, and on May 26 the temperature was normal, the patient leaving the hospital in good condition with her baby on June 12.

She had a scar 2 3-4 inches in length entirely above the umbilicus as the only evidence of the Cesarean section.

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*Read before the Jefferson County Medical Society.

The baby developed nystagmus with slight convulsions and inability to swallow two days after birth. An examination of the blood and of the spinal fluid showed a negative Wassermann.

No definite diagnosis of the condition was made. The baby was fed through a tube temporarily and after the condition subsided was nourished artificially and made a good recovery.

The second patient, a case of placenta previa centralis, was also brought to the hospital on Sunday, September 25, 1921. She was 37 years of age and this was her eighth pregnancy according to her history. She was due about September 8.

The first hemorrhage, very profuse, occurred in bed at midnight about two weeks before her entrance into the hospital. The second hemorrhage took place five days later during the night; the third just the day before she entered the hospital while sitting up in a chair.

She entered the hospital at 8 p. m. extremely anemic and with a blood pressure of 58 millimeters. The position of the fetus could not be definitely mapped out by abdominal examination and no fetal heart sound could be heard. The vagina had been tightly packed with guaze to prevent further hemorrhage.

A vaginal delivery was decided upon because the fetus was undoubtedly dead and delivery by that route should be comparatively easy in a woman who was in her eighth pregnancy. A citrated blood transfusion was again done as preliminary, the husband fortunately proving to be a suitable donor.

After removing the guaze packing a blood clot as big as a fist escaped from the vagina. The vaginal canal was carefully cleansed with green soap and irrigated with sterile water.

Two fingers could be inserted through the softened cervix, feeling placenta in all directions and the fetus could be mapped out apparently in an oblique position. A Braxton Hicks version was decided upon in order to save the patient from further loss of blood.

Fortunately a single foot was easily accessible and was drawn through the cervix, rupturing the membranes. No hemorrhage of any moment occurred and further bleeding thereafter until the end of the delivery was easily controlled by traction upon the leg of the fetus.

An ampoule of pituitrin was then injected and the placenta came away promptly. To guard against the possibility of any further hemorrhage, the uterus was packed from the fundus to the vagina.

A sterile two-inch by ten yards guaze bandage was used for this purpose. These bandages can be carried in the obstetrical outfit very readily and form a very convenient material for uterine or vaginal gauze tamponing when the occasion arises.

This patient, as was to be expected, also developed a puerperal infection and was treated by the conservative method that is used in the hospital. No vaginal or intrauterine manipulations are made and no douches are given. In doubtful cases a swab is made from the lochia inside of the uterus and sent to the laboratory for diagnosis.

The patient is then placed in the Fowler position and given the advantage of fresh air and sunshine on the sun porch. Nourishing food is administered, especially milk punch with a whole egg and a tablespoonful of whisky, three times daily.

. No purgatives are given, a daily evacuation being secured by a low enema when necessary. In severe cases a blood transfusion is given in about the second week.

In the last case reported the second blood transfusion was given about ten days ago, and the temperature has practically subsided by lysis at this time.

The syringe method of transfusion was tried in this case and about 80 cc. transfered from the donor to the recipient. Whether from lack of experience or some flaw in our technique we were not as successful with this method of transfusion as was desirable.

Blood transfusion is recognized as a very valuable aid not only in cases where there has been a sudden great loss of blood as in placenta previa, extra uterine pregnancy and post-partum hemorrhage, but also repeated small transfusions as a curative agent in the treatment of puerperal infection.

Of the various methods that are in use for that purpose, direct transfusion, the Keppler-Brown tube method, the citrate method and the syringe method, it would seem that in obstetrical cases that are nearly aways emergency cases the citrate method of blood transfusion is the most logical, especially since the citrate of soda solution in sterile ampoules can now be carried in the obstetrical equipment.

DISCUSSION:

R. Alexander Bate: I desire to congratulate Dr. Speidel on the results secured in the two cases reported. All who do obstetrical work recognize the seriousness of placenta previa and the necessity for prompt treatment. I believe Cesarean section will in the future be the method of choice in the treatment of these cases. The ease with which the operation may be done is well known; it relieves the mother of any further hemorrhage and in the majority of instances insures a living infant.

I recall one case of placenta previa which came under my observation several years ago. There had been only a few hemorrhages, but sufficient to make the diagnosis positive. The patient was carefully watched and the pregnancy was permitted to progress to full term at the home of her brother, a physician. We were prepared for an emergency delivery at any time had the conditions demanded it. Although delivery was rapidly accomplished at term there was some loss of blood and the child was born dead. It was a normally developed and healthy looking child in every particular, and there was no reason why it should not have lived had Cesarean section been performed. Of course, the placenta was delivered first, and although we thought we were prepared in every way and delivery was completed in the shortest possible time, the child could not be saved.

A peculiar circumstance in connection with the foregoing case may be worthy of mention: The trained nurse and brother physician gave the patient a normal saline solution into the tissues beneath the breast; this was followed by the development of an abscess on each side at the site of injection, and there was considerable sloughing. Inquiry developed the fact that the saline solution was made with water from a spring. The cause of the sloughing was never determined. The mother made a good recovery, and I am sure the child could have been saved had Cesarean section been performed.

H. A. Davidson: The cases reported by Dr. Speidel are very interesting, and we can only commend the treatment which was followed. It happens frequently that in placenta previa marginalis with slight bleeding the patient can be safely carried to term and delivered normally. Where the edge of the placenta merely encroaches upon the cervical opening pressure of the bag of waters or the fetal head will often be sufficient to control the hemorrhage. I have seen several such cases; the patients were carefully watched and carried to term; delivery was then accomplished without maternal or fetal mortality. In placenta previa lateralis it seems to me version would be the ideal method of treatment. In placenta previa centralis there is only one method to be considered if a living child is to be expected, and that is Cesarean section.

I am glad Dr. Speidel emphasized the importance of blood transfusion in the treatment of placenta previa. This is especially of value where there has been repeated hemorrhage. Blood transfusion is being used more and more in both medicine and surgery and is certainly a most valuable adjunct to the treatment. I believe the citrate method is the ideal method of transfusion. By using the 2.5% sodium citrate, which now can be obtained in sterile tubes as stated by Dr. Speidel, adding this to the blood as it is withdrawn from the donor and stirring the mixture constantly there will be no coagulation. By following this plan there need be no especial haste about making the transfusion; it matters not if several hours have elapsed since blood was withdrawn from the donor and its introduction into the vein of the recipient, the sodium citrate will prevent coagulaton. I think transfusion should be used more frequently than it is in surgery, in medicine and in obstetrics.

Edward Speidel (closing): The main point I wished to emphasize in my report was that in placenta previa where the symptoms are unmistakable, there are still physicians who will treat the patient for two or three weeks without recognizing the seriousness of the condition. Anyone who conducts an obstetrical case ought to realize the fact that hemorrhage during the later months of pregnancy is a most serious affair. In the cases reported the patients were almost exsanguinated when they were admitted to the hospital. How any physician can come in contact with a case of this kind without realizing how seriously ill the patient is, especially where the symptoms are so definitely indicative, is something I cannot understand.

With regard to blood transfusion: We tried the various methods in order to determine which would be the most effective and which could be most readily used in cases of placenta previa, excessive hemorrhage, and especially in the treatment of puerperal infection. From the descriptions in medical magazines the syringe method is relatively easy of performance, but the great trouble is the needle becomes obstructed. In this method a canula is inserted into the arm of the donor and another into the arm of the recipient; have three or four 20 cc. Luer syringes sterilized and ready, fill the syringe from the donor's arm and immediately inject the blood into the arm of the recipient. This is repeated until a sufficient amount of blood has been introduced. The technique is simple, but we were not very successful on account of the syringe or canula becoming obstructed. In my opinion the citrate method is best.

As Dr. Davidson has said, in emergency cases where the placenta previa exists, if the membranes are ruptured pressure of the fetal parts may control the hemorrhage and the mother at least may be saved. In severe cases of placenta previa rupture of the membranes and the administration of pituitrin in 3 m. doses will cause the uterus to contract and force the fetus downward upon the placenta and thus control the hemorrhage. In such cases the life of the mother is usually saved, but the child may perish. By performing Cesarean section the lives of both can be preserved in the majority of intances.

PUERPERAL ECLAMPSIA WITH REPORT OF A RECENT CASE.*

By T. J. Marshall, Bardwell.

Puerperal eclampsia is a toxemia resulting in convulsions in the pregnant woman during the later months of pregnancy, or according to Shears, "It is the culmination of toxemia when not untreated or unaffected by treatment."

It has been noted in the sixth and seventh months of pregnancy, but this is uncommon. About half the cases are said to occur during labor, though doubtless this labor is in many cases premature, having been brought on by the profound toxemia. Perhaps one-half of the remaining cases are observed during the eighth and ninth months of pregnancy, before beginning of labor, and the other half during the post-partum period.

Frequency: This has been variously estimated. One in five hundred might be said to be correct in the cases seen outside of hospitals. It is more common in hospital cases. It is more common in and its greater frequency in twin pregnancy is well established.

The cause of puerperal eclampsia is probably unknown, bu there are several theories advanced by different authorities. It seems to be the consensus of opinion that the condition is a toxemia, but differences arise as to the cause of the toxemia. We assume that it is a toxin circulating in the maternal blood that causes the symptoms of pre-eclamptic toxemia, and eventually the coma and convulsions of eclampsia.

But what is the toxin? Formerly it was thought to be uremia, caused by nephritis complicating pregnancy; however, it has been shown that the kidney changes are secondary rather than primary.

The theory of auto-intoxication was popular for a long time; according to this, the kidneys are not able to perform their task of elimination of the excess of waste matter that must be disposed of during pregnancy. Various observers have disproved this theory. Some still hold strongly to the belief that the absorption of decomposition products from the intestinal tract is the real cause of eclampsia.

It is well known that during pregnancy the blood is invaded by certain fetal elements, e. g., the syncytial elements of the placenta, which but for the development of a hypothetical antibody would do harm if present in excess, and that in eclampsia this antibody is not present; this has brought forth the modern biological theory.

Another theory is that the blood current is invaded by an excess of fibrin ferment, also thyroid insufficiency has been held by some to be the cause, but very positive evidence to this effect seems to be lacking. Some men studying nitrogen metabolism in pregnancy have shown conclusively that during pregnancy large quantities of nitrogenous substances are excreted by the kidneys in a state of incomplete oxidation; therefore, they claim that this incomplete oxidation must be the result of some toxin of unknown origin circulating in the maternal blood and interfering with the oxidative function in the liver, or the eliminative work of the kidneys, or both.

The fetus may die as the result of the eclampsia, but seldom does a mother carrying dead fetus develop eclampsia, therefore it seems plain that the cause must be bound up with the presence in utero of the living and growing fetus; furthermore, it seems that the fetus must have reached an advanced stage of development, since eclampsia occurs during the latter months of pregnancy.

The pathological changes are most marked in the liver, some kidney changes are almost always found, they are probably more degenerative then inflammatory.

Multiple thrombosis is the principle feature of the cerebral changes.

Symptoms: There are certain usual prodromata, which might be considered under: (1) Urinary, albumin if found and especially found on repeated examinations, should excite the attention of the physician. More extensive urinary examination; as nitrogen partition, i. e., by the relative amount of nitrogen elimination as ammonia and as urea. This kind of analysis requires two or three days for its completion and is quite beyond the resources of any one but a good analytical chemist.

Acidosis probably preceeds the other urinary changes and is usually overlooked. The quantity of the urine should be noted. A pregnant woman during the latter months, taking a normal amount of liquids, should not pass less than sixty ounces of urine a day, and any considerable fall below this amount should be investigated.

(2) *Circulatory System*: Among these symptoms the oedema is the most prominent. Slight swelling of the feet, especially in multiparae, is usually a common occurrence, but when the oedema extends up the leg and there is pitting over the tibia, evidence of toxemia will usually be found. Oedema of the upper part of the body, particularly the hands and face, is a dangerous symptom.

A pulse of high tension and a blood pressure of 140 or more systolic are highly suggestive symptoms.

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*Read before the Carlisle County Medical Society.

(3) *Symptoms Referred to the Nervous System*: Headache often described as being located above and behind the eyes, when continuous and severe is a bad omen. Nervousness, irritability, insomnia, twitching, vertigo and ocular disturbances are other dangerous symptoms.

(4) *Digestive Symptoms*: These are less prominent, but should not be overlooked. Nausea and vomiting occurring in the latter months of pregnancy, are often toxic in origin; so is obstinate constipation. Severe epigastric or abdominal pain, not connected with the uterine contractions, should be regarded with apprehension. In neglected or untreated cases and, very rarely, in spite of treatment, the albumin increases and casts appear in abundance. The oedema extending and involving the face and hands. Severe persistent headache, eye disturbances, or may be loss of vision, vomiting and epigastric pain and contraction of the pupils, taken together or a majority of them, constitute the pre-eclamptic syndrome. This picture is seldom seen nowadays, and when we do see it, it is usually due to negligence on the part of the patient or her family in failing to report or consult a physician.

The convulsion may come on suddenly, the patient may be conversing with friends, when she is suddenly seized with a convulsion. The eyes become fixed, then slight twitching of the face and eyelids follow, immediately followed by spasm of the facial muscles and those of the upper part of the body, rolling of the eyes and protrusion of the tongue; this is described as the first stage. In the second stage the entire muscular system becomes fixed in immovable contracture, breathing is arrested, the face is blue and cyanotic, this stage ends suddenly with deep inspiration which ushers in the third stage; tonic and clonic convulsions of the whole body now follow; sometimes the movements of the body are so rapid and violent that the patient can hardly be kept on the bed; blood and mucus now flow from the mouth, the tongue is bitten during the convulsion and the temperature may reach 102 or 103 F. The cause of the high temperature is a subject of controversy.

The pulse which may have been rapid, 130 to 160, and of high tension, is likely to be during the convulsion, intermittent and feeble.

In mild cases the woman regains consciousness, soon after the convulsion, but remembers nothing of which has taken place. In severe cases the convulsions are followed by profound coma.

In some cases a dull mental or semi-comatose condition may precede the convlusions, and during the convulsion the pupils may be dilated, but in the coma they are contracted.

Prognosis: The mortality is given from 30 to 40 per cent maternal and 50 per cent fetal; post-partum cases are less fatal than those occurring before or during labor. Profound coma and repeated convulsions add to the gravity of the case and when the pulse becomes irregular and weak the prognosis is bad. High temperature and jaundice are bad signs. According to Polak, a normal or subnormal luecocyte count is a fatal prognostic sign, while a high count if persistent is favorable.. Complete anuria is one of the worst symptoms.

The diagnosis is not difficult, but hysteria, uremic poisoning, epilepsy and certain drug poisoning may resemble eclampsia, but a careful clinical history and urinalysis should establish differentiation.

Prophylaxis: The pregnant woman should place herself under the care of a physician as soon as she knows herself to be pregnant, and frequent consultations between the patient and the physician should be encouraged, and frequent urinalysis should be made. In this way toxemia is recognized early, for as we know it is a matter of wonder what some women will endure without complaint. Furthermore, some of the most ominous symptoms of toxaemia, e. g., oedema of the face and suppression of the urine are not painful, nor particularly troublesome. Therefore, the suggestion above will enable the physician to treat the early toxemia usually successfully.

A patient with symptoms of toxemia should be put to bed, restricted to a milk diet and encouraged to drink water freely, which in conjunction with warm saline flushing of the bowels acts as a diuretic as well as aiding elimination by the bowels, which should further be encouraged by the use of saline cathartics, and elimination by the skin should be encouraged by warm daily baths. If the condition is threatening, hot packs often bring improvement.

Plenty of fresh air is useful, and even the administration of oxygen is beneficial. Under this form of treatment the patient usually improves, but she should be under close observation during the remaining weeks of pregnancy.

In those who do not show improvement under treatment, as by the oedema reducing, the albumin diminishing, and the quantity of urine increasing it is probably best and safest to induce labor.

If the patient develops eclampsia, the question of treatment arises; whether to induce labor immediately or treat the patient by trying to relieve her and tiding her over until her time is up, allowing labor to terminate in the normal way. Each method has its advocates. If the patient is beginning labor when first seen in eclampsia it is best to hasten labor.

As in most diseases or conditions where the etiology is unknown, many remedies have been suggested and discarded. There are, however, three indications to be met: the suppression of the convulsion, elimination and the reduction of high blood pressure. For the first condition, chloral hydrate is highly recommended by many observers, veratrum viridi has its adherents, chloroform formerly was used, but now has been discarded as being a dangerous remedy in eclampsia. Oxygen is probably of great value when it can be obtained, but fresh air is always available. Morphine is now considered by many to be of great value. Elimination by the bowels, kidneys, and skin should be encouraged; one or two drops of croton oil or ¼ gr. elaterium or 10 grains calomel on tongue will hasten elimination by the bowels. Elimination by the skin with hot packs, blankets; diuresis is favored by irrigation of the colon with hot saline solution. Also normal saline used under the skin and intravenously is to be considered as well as venesection. These measures of elimination tend also to lower the blood pressure.

Thyroid and para-thyroid extract have been used with satisfactory results, as has been the injection of oxygen in the breasts.

The treatment of eclampsia may be briefly stated: morphine, elimination by the bowels, skin and kidneys and the induction of labor.

Case Report:

Mrs. B. M., primipara, white, age 25 years, 8 months, pregnant, was first seen October 30, 1921. Until about a week previous neither she nor her friends had noticed anything unusual in her condition, but during the preceding week, she had become oedematous over whole body, urine scanty, persistent headache, and disturbance of vision. Dr. Payne saw this case about 10 a. m. on the above date. As stated above, the oedema was extensive, involving face hands and whole body. A woman ordinarily weighing 110 or 120 pounds, she looked as though she would weigh 175 or 200 pounds. She was mentally dull at that time, normally her mentality is bright. Blood pressure S. 165, D. 90. Specimen of urine obtained showed heavy ring of albumin. Rest and elimination by bowels and kidneys was prescribed, Dr. Payne leaving.

About 2 p. m., four hours later (Dr. Payne being out) I saw the case. Patient was in a state of profound coma, pupils contracted and pulse 140.

The family stated that she had had four convulsions since 12:30, or within the last hour and half. A vaginal examination was made, which revealed no indication of beginning labor. About this time patient had another convulsion and ½ gr. of morphine hypodermically was administered and a pint or more of blood was drawn from left median vein, and consultation asked for. Dr. Mosby came into the case with me. The patient had another convulsion about 2:30 and received a ¼ gr. more of morphine, also 10 gr. calomel on tongue and application of blankets rung out of hot water and wrapped about patient was begun and the bowels flushed with hot saline.

At 4:30, 6, 9 and 10 p. m. patient convulsed and never conscious. Dr. Payne came in about 4:30.

Patient received a hypodermic of morphine, ½ gr. at 2, ¼ at 2:30, ¼ at 3:30, ¼ at 5, ¼ at 6, ¼ at 8 and ¼ at 10 o'clock, making 2 gr. of morphine within a period of 8 hours. Her respiration ranged from 8 to 12 per minute, at times as low as 6. Her pulse remaining from 120 to 140. Blood pressure S. 145, D. 90. After the convulsion at 10 o'clock, also the tenth convulsion, we decided to empty the uterus, after placing patient on a table and examination, we discovered that nature was endeavoring to terminate labor; therefore, we proceeded to hasten delivery by rapidly dilating the crevix and doing version. This was successfully accomplished and we succeeded in delivering a live baby boy that is still living, thriving and growing and doing fine in every way.

The mother remaining in profound coma, having no convulsions until 4 a. m., about 5 hours after delivery, she also had six more convulsions during the next three hours, making 10 before delivery and seven after.

Dr. Payne was with the case when she had the last seven convulsions. He administered ½ gr. of morphine at 7 a. m., ¼ at 8 and ¼ at 9, making 1 gr.

This patient has made a good recovery; for four or five days she was stupid and dull, answering questions slowly or not at all, remembering nothing that had taken place. For a few days she had a severe colitis. The oedema did not entirely disappear for about three weeks, and she had a low type of infection with a slight temperature.

Dr. Jackson of Arlington, also was called in this case.

CASE REPORT—SARCOMA OF THE EYE.*

By Charles C. Maupin, Louisville.

A. W., male, aged 61 years, consulted me September 1, 1921, presenting the following condition of his left eye: Pronounced cataract, increased tension of the globe, attachment of the iris to the lens, left eye slightly larger than the right, no vision, no perception and no projection of light.

Upon investigation I found he had been exceptionally free from disease and had no specific history. His vision began to fail four years prior to my seeing him. At that time he had some pain which probably accounted for the iritis formerly present and leaving the posterior synechia.

The patient had, prior to coming to me, consulted another oculist who had seen him three times at intervals and left him with the impression that he was uncertain as to what was best for him to do.

During routine examination of the eye I discovered that upon tapping the globe with my index finger he experienced no discomfort. Exerting moderate pressure upon the globe between my two index fingers he complained of dull pain, which he said he had suffered more or less constantly, but it was somewhat increased on pressure. Similar examination of the good eye produced no discomfort.

The increase in size of the globe plus tension, firm posterior synechia, absence of projection and perception of light, made it definite that no benefit could be expected from lens extraction. All hope of this character being destroyed, and with the slightly increased size of the globe and the manner in which the pain could be increased, with the patient 61 years of age, I determined that the eye should be removed and suspected malignancy, and so informed the patient. Having been thoroughly enlightened, he readily consented to the operation and refused consultation which I had suggested to preclude any chance of error being made in removing the eye.

The heart, blood pressure and urine having been examined and found negative except for a slight trace of albumin, I sent the patient to the hospital as an ordinary risk and removed the eye by enucleation September 8, under gas-oxygen and ether anesthesia. He made a normal recovery and accepted an artificial eye ten days later which he is now wearing with comfort.

The specimen was sent to the pathological laboratory and the return report showed melanotic sarcoma of the choroid which had not penetrated the sclerotic coat. The patient has been advised to return, both to his family doctor and to me, to watch for possible metastases.

This would have been an ideal case for the introduction of radium needles had the patient been in more fortunate circumstances. The purpose of this report is to show the importance of recognizing existing conditions in blind eyes.

DISCUSSION:

S. G. Dabney: I congratulate Dr. Maupin on the outcome of his case. Of course, a positive diagnosis was impossible here, but the enucleation of the eye was evidently called for. There are two forms of malignant disease occurring in the eye: glioma of the retina and sarcoma of the choroid. Retinal glioma occurs in infancy or early childhood; is frequently bilaterial; often affects several members of the same family, and despite early enucleation is frequently fatal. Radium applied to the orbit after enucleation is under trial. In my own experience I have seen one family in which three infants have bilateral glioma of the retina—fortunately they were all fatal.

Sarcoma of the choroid occurs usually in persons past forty, and is divided into four stages: First, the quiescent stage; second, the glaucomatous stage, occasionally replaced by an iridocyclitis, as in Dr. Maupin's case; third, the stage of orbital involvement, and fourth, the stage of metastasis usually to the liver. The last two stages may be reversed—the liver being affected before there is any orbital involvement.

I saw once such a case in consultation with my late colleague, Dr. Cheatham. In the quiescent stage the condition may be manifest ophthalmoscopically by a growth usually dark in color projecting into the interior of the eye from the choroid. More often, however, the first manifestation of the disease is simply a detachment of the retina. Though we have certain theoretical differences for distinguishing this detachment from that due to other causes, practically the diagnosis is often difficult to make.

Trans-illumination is of the greatest assistance—this is done by putting a small light in a dark room against the sclera, the pupil ordinarily becomes luminous, but when it is placed over the site of a new growth, the pupil remains dark.

If there is no evident cause of detached retina, such as a high myopia, trauma, or Bright's disease, it is wise to watch all detachment cases from time to time, and particularly to urge the patient to return immediately if the eye becomes painful. This painful stage is the second or glaucomatous stage, this being usually followed by involvement of the orbit and later by metastasis. Early operation will save the life and prevent recurrence in at least 50% of the cases.

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*Read before the Jefferson County Medical Society.

Twenty-three years ago I operated on a lady then 62 years of age for sarcoma of the choroid, and in enucleating I went pretty far back, which is a wise thing to do. The growth was just protruding through the sclera posteriorly—a black shiny mass about three times as big as a grain of wheat, sticking out at the back. I showed this specimen to one of our local societies, and the late Dr. Rodman, of Philadelphia, who was present, and who was considered an authority on tumors, said, "Dabney, don't let that woman wear a glass eye," and yet she has worn a glass eye and is well and hearty at the age of 85.

As regards treatment: Only three things are to be emphasized—if the growth is confined within the sclera, simple enucleation is sufficient; this of course, is the best time for operation. If the growth has invaded the orbit, the entire orbital contents should be removed. Radium is under trial for use in the orbit.

C. C. Maupin (closing): I have little to say in closing except to thank the gentlemen for their discussion of my case report. My suggestion as to the use of radium was purely as a post-operative measure.

FIBROSARCOMA OF UPPER JAW: CARCINOMA OF CHEEK—CASE REPORTS.*

By J. Garland Sherrill, Louisville.

J. M., male, colored, aged about 30 years, was before this society two weeks ago for examination. He had what proved to be a fibrosarcoma involving the upper jaw. He first noticed some swelling and slight pain in the left side of his face early in July, 1921.

He was operated upon ten days ago. The incision was begun along the lower margin of the orbit and extended downward along the ala nasi through the lip in the middle line. All dissection of the soft parts was completed and hemorrhage controlled before any effort was made to remove the bone. A chisel was used in cutting through the mala bone, also under the orbit and the nasal bone. The operation was then completed with pliers and large bone forceps. The skin incisions were closed in the usual manner and its healing is now complete.

It is the custom in some cases of this kind to perform tracheotomy as a preliminary measure on account of the difficulty encountered in maintaining anesthesia; while this procedure simplifies the operation it adds to the gravity. Tracheotomy was not performed in this case and we were able to keep blood out of the throat fairly well by use of ordinary precautions.

The base of the growth was thoroughly cauterized with actual cautery. Radium will be used in the attempt to prevent recurrence.

The second patient, a male, white, aged 61 years, was also before the society two weeks ago. He then had an epithelioma involving the left side of his face. The patient was operated upon about twelve years ago for removal of a small epithelioma of the upper lip right side. The operation was entirely successful and the patient was placed in my list of cured cases. About two years ago he noticed a small papule on the left side of his face below the ear which finally developed into an epithelioma. This second growth was attributed to the fact that he worked in a foundry and came into constant contact with dust and soot from stoves.

In removing the growth a few days ago a free incision was made with cautery knife and scissors. Following the operation Dr. Wm. J. Young applied 1,800 milligram hours of radium to the wound. The Roentgen-ray was used prior to the operation for the purpose of blocking the lymphatics.

In my opinion this second growth had no relation whatever to the first one, as it developed on the opposite side. Had the second tumor been a recurrence or metastatic growth it would have ocurred on the same side.

DISCUSSION:

Fred L. Koontz: In regard to the first case: So far as the ultimate result is concerned, I very seriously doubt the advisability of any operation on the superior maxilla for the removal of malignancy. I make this statement as regards the ultimate result, not, so far as temporary relief from the handicap is concerned. It may be entirely advisable to undertake an operation of this magnitude for the temporary relief of symptoms. So great an authority as Dr. William C. Dugan, with whom I talked on this subject a few days ago, is absolutely pessimistic on the subject of operation directed to the superior maxilla where one is dealing with malignant disease.

The result of Dr. Sherrill's operation at this time is really remarkable, inasmuch as this man is apparently much more comfortable than before the growth was removed. Healing of the operative wound has been perfect. Dr. Sherrill's technique of incising the soft parts is essentially the French method. I do not believe he acquired this technique in France, it is probably the result of his experience, but it is definitely the French procedure, i. e., clamping the soft tissues and controlling hemorrhage in the soft parts before attacking the bony structures. Those of you who have attempted an operation of this kind know that the greatest hemorrhage comes from the soft tissues and not from removal of the bony structures, except in those rare cases of malignancy where large blood vessels have to be dealt with during the operation. In cases of the latter type hemorrhage can be effectively controlled by temporary ligation of the carotid artery.

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*Read before the Jefferson County Medical Society.

Dr. Sherrill spoke of the anesthetic: In cases of this kind two things are absolutely essential, one is the rapid removal of blood from the air passages by a suction apparatus of some kind, and second is intra-tracheal anesthesia by one of the methods now in vogue. I have seen this done many times, and in a few instances have personally introduced a blunt tracheal tube directly between the rings of the trachea after general anesthesia had been induced through the mouth or nose, and continued the anesthesia by the intra-tracheal method direct, at the same time exhausting the secretions from the nares and throat by a suction apparatus. This plan greatly simplifies operations on the nasal tract and face.

SOME INDICATIONS FOR THE INTRAVENOUS USE OF SODIUM IODIDE.*

By R. R. Elmore, Louisville.

The administration of iodine and its salts is one of the most ancient and common procedures in medicine. In giving the iodides it is well to keep in mind the more or less striking difference in the action of potassium and sodium. Ringer lays down the dictum that the action of salt is the sum of the action of its component parts.

Potassium is a depressant, sodium only slightly so, requiring fourteen times as large a dose to suspend contractibility of the heart muscle as compared with potassium. Hence, in the intravenous use of large doses of sodium iodide we do not anticipate the depressing influence on the mental and muscular systems as in similar doses of potassium iodide. The most constant action of the iodides is to increase the secretory functions of the mucous membranes, but the great diffusion power of these salts makes it probable that iodide can be detected in all the fluids, bathing the tissues or moistening the cavities of the body.

Contemporary medical literature speaks generously and frequently of iodine as a preventive and therapeutic remedy. Experimental work is reported in the use of iodine and honey by the mouth as a preventive in epidemics of cerebro-spinal meningitis and influenza. Some French writers offer enthusiastic reports of treatment of slowly progressive pulmonary tuberculosis with iodine, giving the tincture by mouth with small initial doses. Intramuscular injections in the treatment of surgical tuberculosis have given excellent results.

The precise manner in which iodine acts in infections is a subject for ingenious speculation. Possibly iodine induces a vital reaction manifested first by a lymphocytosis, the ferment of the lymphocyte acting on the fat of bacteria. It has a stimulating action on the functions of glands, especially of the ductless type and promotes vital functions. It is said to have no preference among bacteria. In large doses perorem iodine provokes gastric irritation and disturbs various digestive changes throughout the alimentary canal. Since it is prescribed by mouth with the sole intention of its being taken up bby the blood, the introduction directly into the blood is a logical practice, providing it can be safely and efficiently done.

Most of the cases observed during eighteen months of intravenous use of sodium iodide come under the headings of respiratory, cardio-vascular, genito-urinary systems, joints and special glands. Respiratory system, chronic larynigitis characterized by recurrent hoarseness, scanty tenacious secretions, local irritations with more or less cough; acute bronchitis in early stages with subsfernal pain, oppressed breathing, harsh, dry, ringing cough. In the above pathology sodium iodide hastens the stage of exudation, and with free expectoration the symptoms rapidly disappear. In chronic bronchitis it is effective in relieving cough and "clearing up" expectoration.

In spasmodic asthma independent of cardiac or renal origin and without ascertainable causes, such as odors, irritants, emotions, or dietetic errors, sodium iodide will frequently relieve the paroxysms. It is sometimes necessary to use adrenalin chloride in conjunction. Have not been able to induce a patient to continue treatment between attacks for a sufficient period to arrive at any conclusion as to "warding off" attacks.

In a few cases of secondary broncho-pneumonia, a terminal condition in the aged, iodide has aided expectoration by liquefaction of the exudate and made the patient more comfortable.

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*Read before the Jefferson County Medical Society.

Cardio-Vascular: In two cases of infectious origin in children the treatment mentioned afforded apparently brilliant results.

Case I.—A. G., female, aged 12 years, after an acute tonsilitis developed palpitation, dyspnea, precordial oppression and pain, frequently extending down left arm. Variable arthritis, choreiform movements. Heart sounds were replaced by murmurs, area of cardiac dullness increased, apex beat displaced downward and to left, friction rub over precordia, also over left lung posteriorly with later dullness; chills, fever and sweats completed the picture. A consultant recommended pleural aspiration to relieve respiratory embarrassment. A few ounces of fluid were withdrawn without relief.

The endocardium, pericardium, myocardium and pleural surfaces had been "hit hard" by some virulent organism and the prognosis was doubtful as to recovery.

Case II.—School boy, aged 10 years. Tonsils removed two years prior to observation. Gave an immediate history of falling a short distance, landing on his feet. Subsequent acute arthritis of ankle joints, with mild chills and sweats and some fever. This little patient did not complain of the pain, dyspnea or apprehension present in first case, but the symptoms assumed a progressive course until clinical evidence suggested similar pathology. A consultant pronounced the prognosis hopeless.

The probable outcome of these cases was explained to the parents and their permission to administer sodium iodide was given. The cough, dyspnea and articular symptoms were first to disappear. The first patient is attending school, but has a loud systolic mitral murmur. The second spends several hours daily in a wheel chair, he has a pulse of 90 to 120, according to mental and physical excitement, and still presents evidence of impaired action of all cardiac valves. Cardiac dullness has diminished and the apex beat is well within the nipple line.

In acute arthritis of known streptococcic or gonoccocic origin this remedy intravenously given has afforded excellent results.

In chronic arthritis of the so-called "rheumatic" type the treatment must be prolonged with intervals of omission to avoid extensive katabolic changes.

In one case of pyelitis following a severe attack of influenza, the pus and bacteria promptly disappeared (a forty-eight hour culture of urine proving negative).

Several patients with intractable cystitis (elderly females) which did not subside under irrigation were quickly made comfortable. These patients all described a sensation of warmth in the bladder a few minutes after administration, which is suggestive that the iodine has some selective action on inflamed mucous surfaces.

One case of parenchymatous mastitis and one of acute prostatitis came under observation. How much benefit was conferred by the sodium iodide is difficult to estimate, as these cases were of acute type and self-limited in character.

The possible dosage of sodium iodide is shown in a synopsis of an article by Howard in the Journal, A. M. A., on the treatment of a case of laryngeal syphilis which was resistant to intensive antisyphilitic treatment by arsenical and mercurial preparations. Beginning with 30 gr. the dose was daily increased 5 gr. until a maximum dose of 335 grains were given. This patient received 125 injections with an average dose of 208 grains, total dosage 26,013 grains. Some interruptions were necessary, the duration of treatment being 224 days with an average daily dose of 116 grains.

Three precautions are necessary to satisfactory intravenous administration of sodium iodide.

1. A small preliminary dose to ascertain the patient's resistance to the drug, as many persons present an idiosyncrasy to iodine.

2. Every drop must be placed within the vein, as the solution is highly irritant and provokes intense pain in subcutaneous tissue.

3. The solution should be slowly introduced into the vein.

A stock solution is made of sodium iodide C. P. 150 grams in 1000 cc. freshly distilled water. This is about 2¼ gr. per cc. The solution is filtered and sterilized and given under careful aseptic conditions, being a stronger solution than is usually recommended, and should always be administered with the precautions mentioned two or three doses given weekly.

DISCUSSION:

I. N. Bloom: I have had no experience with the intravenous administraton of iodine. The essayist's statement that precautions should be taken to test the patient to determine his susceptibility to iodine before giving large doses is important and appealed to me. This matter is often neglected, especially by the general practitioners.

I have been impressed with the importance of this subject by the large number of patients who have come to me with severe dermatitis produced by the external application of iodine. Hardly a week passes that I do not see from one to three cases of this kind.

Iodine is extensively used externally by two classes of people: First, by the layman who, under the prevailing "first aid" teaching, applies tincture of iodine liberally to wounds and injuries of every type; second, by the family physician who is usually next to see the patient. In either event iodine local poisoning may occur if the individual has an idiosyncrasy to the drug.

It is important that the patient be tested before a large dose of iodine is given either intravenously or by the mouth. I have seen patients who had been taking small doses of the iodides per orem develop various forms of severe and even dangerous dermatitis.

The dose of iodide, either potassium or sodium, is almost unlimited in those who can tolerate the drug, but those who exhibit an individual susceptibility, even five to ten grains by mouth, three or four times a day, may be sufficient to cause disagreeable symptoms. Again, certain individuals who cannot in the beginning take even small doses without inconvenience may later be able to tolerate enormous quantities. As an illustration: I recall a gentleman (physician) who presented evidence of late syphilis during the course of which I prescribed thirty grains of potassium iodide three times a day. He asked if the dose could not be reduced; that he had headache, general malaise, loss of appetite, etc., which he attributed to the large doses of iodide. He later developed hemiplegia while in the country and was with difficulty placed in an automobile and brought to Louisville. Notwithstanding my previous experience, I immediately gave him 200 grains of iodide three times a day and gradually increased the quantity to 500 grains three times daily. At no time under this dosage did he have headache, malaise or loss of appetite of which he had previously complained when taking only thirty grains three times daily, nor did he develop any skin lesions.

I wish to particularly emphasize what the essayist has said about the importance of testing the patient before administering large doses of iodine, and in addition to decry the external application of iodine as is now the almost universal custom.

E. R. Palmer: I was particularly impressed with what the essayist said about the use of sodium iodide in gonorrheal arthritis. As we all know, this is an extremely difficult form of "rheumatism" to deal with. I have had no experience with this drug intravenously. Since hearing Dr. Elmore's excellent paper I shall more than likely make use of this method.

I have two patients with gonorrheal arthritis now under observation in the hospital. One has a badly inflamed ankle and knee, the other an inflamed knee. I have always in such cases administered iodide of potassium internally, but, as Dr. Elmore has said, if we can secure more rapid action from intravenous injection, provided we test the patient and find there is no individual idiosyncrasy to the drug, I think this would be quite an aid to us in the handling of these cases.

I have always thought iodine was useful in chronic suppurative cases. It has been my custom to use iodide of potassium in chronic prostatitis and I believe it does some good—how I do not know. I would like to know whether Dr. Elmore has used his method in dealing with any of these cases, and, if so, what the result has been.

H. N. Leavell: I had intended to report a case where rather large doses of iodide of potassium were administered, but since hearing Dr. Bloom's report mine fades into insignificance. However, my case may be worth mentioning along with the one reported by Dr. Bloom, showing the amount of iodide of potassium which can be given daily without the production of any disagreeable symptoms.

A railroad switchman in apparently normal physical condition came to me complaining that when he walked along the track he saw four rails. He saw an approaching engine and said there were two of them. I asked him how long it had been since he had syphilis. He replied that he had syphilis twenty-three years ago, but could not see how that had anything to do with his vision. He was seen by four different ophthalmists in the city and each one asked him the same question, viz., how long had it been since he had syphilis. He was finally sent back to me and I began the use of iodide of potassium, starting with ten drops of the saturated solution three times daily. He took this quantity for several weeks without any ill, or, in fact, any good effects. The amount was gradually increased until he was getting 200 drops four times a day by mouth with plenty of water. Within three months under this dosage he regained his eyesight completely and lost thirty pounds in weight.

I have never had any experience with the use of iodine or any of its combinations by the intravenous method. I have always been led to believe that iodine was an alterative and was not to be used in acute cases, especially those suppurative in type. I am glad Dr. Palmer mentioned that point, because in suppurative conditions it would seem that we have a great deal of metamorphosis of tissue going on, there is more or less anemia, often with rapid pulse rate, and these symptoms would seem to contraindicate the administration of iodide of po- then the iodides are certainly indicated. How- But where there exists any glandular enlargement, where there is necessity for purging the glandular system, or where there is lymphatism, then the iodides are certainly indicated. However, in each and every instance we should thoroughly test the individual susceptibility of the patient before giving large doses of iodine in any form. Not infrequently iodine produces gastro-intestinal disturbances more or less catarrhal in type which are difficult to overcome. The patient often loses weight and iodism occurs which is not easy to relieve. We have nothing in our therapeutic armamentarium which has any particular efficacy in getting rid of iodism except the natural forces. It is usually best to let the patient alone and have him drink plenty of water, flushing the tissues in this way. I do not believe we can get rid of iodism as quickly as we can some of the other conditions produced by drugs.

Iodine is a drug which should always be used with caution, and especially is this true in persons with nephritic or cardiac lesions and in those who possess an idiosyncrasy to the drug. My remarks refer particularly to the potassium salts and not to iodide of soda. I have never used sodium iodide intravenously.

A. W. Nickell: I have had no experience with intravenous injections of sodium iodide. I have given the drug by mouth in several cases of lead poisoning with beneficial effect. I wish Dr. Elmore in closing would tell us what his experience has been with the intravenous method of administration in this type of poisoning. It would seem that it should be successful in that it forms a double soluble iodide of lead.

With reference to the cardio-vascular system: There are certain types of cardio-vascular disturbances where the iodine is indicated and other types which it is contraindicated, as we all know, and time precludes entering into the merits and demerits of each. In asthmatic conditions syphilitic aortitis, pericarditis with adhesions, etc., iodide of soda has given excellent results. In no instance where I have used the potassium salts in so-called "therapeutic tests" or otherwise have I seen any untoward effects. I usually give potassium salts in syrup of sarsaparilla compound one hour after meals. I have had no untoward effects from the administration of potassium in that way.

R. R. Elmore (closing): I have had no experience with the use of sodium iodide along the lines mentioned by Dr. Palmer and Dr. Nickell; that is, in suppurative prostatitis and lead poisoning. I am sorry, therefore, that I am unable to answer their questions.

Present medical literature indicates that the French are the most enthusiastic users of iodine. Some French authors have suggested that in every case of infection iodine should be used. However, they have thus far failed to offer any explanation of how it acts.

ARSPHENAMIN DERMATITIS EXFOLIATIVA—CASE REPORT.*

By William J. Young, Louisville.

Patient, L. S., female, white, aged nineteen years, first came under my observation this afternoon, November 7, 1921, in the skin clinic of Dr. I. N. Bloom, of Louisville City Hospital. According to the history she had a four-plus Wassermann seven weeks ago and was given six intravenous arsphenamine injections at weekly intervals. The first and second dose caused no inconvenience. The patient was sick for a week following the third injection. The fourth injection caused no symptoms. The fifth treatment was followed by an urticarial erythema which disappeared within a few days. The sixth injection was followed in a few hours by an intense erythema which gradually took the form of a rash resembling measles. This rash has gradually become more pronounced.

At present the patient has a generalized dermatitis involving almost the entire body. The skin is reddened, thickened in appearance and covered with scaly desquamation. This eruption is of one week duration and is accompanied by intense itching and burning.

The patient is before you for inspection if any of you care to do so.

DISCUSSION:

E. R. Palmer: Dr. Young's case of arsphenamine dermatitis is extremely interesting. I have sometimes wondered whether this condition is due entirely to the administration of arsenic preparations, or whether it may not possibly be due to underlying syphilitic infection of the tissues.

About six months ago I had under observation a patient with syphilis of twelve or fifteen years duration who came to me because of some neurological symptoms and I place him on inunction treatment. About a week after this treatment was commenced he began having decided urticarial eruptions and a distinct dermatitis. I have seen dermatitis from mercurial inunction several times and, of course, recognized it as dermatistis medicamentosa, but the lesions which developed later in this case seemed to be secondary, papulo-squamous syphilides, looking more to me in the nature of a late Herxheimer reaction. It has occurred to me that possibly the action of arsphenamine on the skin is also at least partially of that character.

In explanation of the reaction: I think arsphemanine and mercury causes a sudden inhibition of the protective influence of antibodies which liberates the spirochaetae by taking away the restraining influence, and renewal of their activity causes a decided reaction. The character of the reaction will depend more or less upon the stage of the disease and the tissues in which the parasites seem to be more particularly located; if in the skin and the condition is one of late secondary, we will get skin lesions of the late secondary type; if in the meninges or in the central nervous system we will get a Herxheimer reaction of these tissues.

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*Read before the Jefferson County Medical Society.

Of course, arsphenamine has been used almost exclusively in syphilis, and it is difficult to determine, unless it is used in other conditions, whether we will get this exfoliative dermatitis in non-syphilitic conditions. I think it is well to bear in mind the fact that this type of reaction may be not simply the result of arsenic, but of arsenic acting on a syphilis diathesis.

S. E. Woody: I have recently had a case just like this, equally as severe, in a patient who had no syphilitic taint. It was simply the result of repeated doses of sodium cacodylate.

Wm. J. Young (closing): It did not occur to me that there would be any question about the correctness of the diagnosis in this case because the history seemed typical. As to what Dr. Palmer has said about the action of arsphenamine on the spirochaete, I do not believe that has any bearing on the question whatever.

We have doubtless all seen marked cases of dermatitis exfoliativa following the administration of diphtheria antitoxin. While the dermatitis in this case is more intense than the reaction noted following the use of antitoxin, yet it is precisely the same thing, and I suppose it would be proper to call it dermatitis medicamentosa.

I do not see why we should consider any action of the spirochaetae whatsoevevr, because this type of reaction may be seen any stage of the disease. It is a comparatively rare condition, and as we always have our warning it should practically never occur. If the physician will watch the patient closely after each injection of arsphenamine to see whether there appears any erythema or urticaria the dermatitis may be prevented. As soon as the least erythema develops following intravenous administration all he has to do is to discontinue the drug for the time being, and in forty-nine out of fifty cases it will not occur. This type of eruption is seldom noted excepting after the first or second dose of arsphenamine.

PSYCHASTHENIA: CASE REPORTS.*

By H. B. Scott, Louisville.

Psychasthenia is a chronic, non-dementing psychosis, characterized by the occurrence of imperative ideas, by compulsive and impulsive acts, by morbid fears, and conditions of agitating doubts. The terms "obsessional neurosis," "compulsion neurosis," or "obsessive psychoneurosis," are used by some authors.

In this class of individuals the mental state is such that some particular thought, feeling or impulse is so uncontrollable and predominates to such a degree that it becomes a real annoyance to the patient. This abnormal mental state is occasionally experienced by perfectly normal people. Neurasthenia usually accompanies this condition and many unstable persons, when they become weakened or exhausted by work or disease, develop morbid fears and obsessions.

The symptoms develop in four different types, though these are often intermingled, and, in most cases at least, three of the characteristic groups of symptoms are more or less present. These types are characterized by: First, morbid fears; second, by imperative ideas; third, by a doubting mania, and fourth, by morbid impulses.

It must be understood that all "phobias" or "morbid fears" are not symptoms of obsessional neurosis. This same fear in one patient may be hysterical and in another obsessional. Many of these fears have received specific names.

This disorder usually begins suddenly as a result of some slight shock, and perhaps of some casual or unimportant incident. A person in a crowd suddenly has a feeling of disturbance of consciousness, with something like vertigo. He is alarmed, the head seems full, the heart palpitates, and he feels as if he would faint. These attacks are repeated. After the occurrence of one or two the patient becomes afraid of crowded places—agoraphobia—or if he were in an enclosure, claustrophobia.

The fear of dirt, mysophobia, which appears in many forms is the most common of all. This term is usually considered in the moral sense. Patients suffering from this obsession are fairly comfortable so long as everything and everybody near are still, but should anybody be moving in the room they fall into a state of mental anguish lest some of the dust raised by the movement should fall upon them or their clothing. Some shake their clothing every few minutes, others avoid handling it, or any other articles for that matter, and should such action become necessary they wash their hands afterwards, consequently they wash fifty times a day.

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*Read before the Jefferson County Medical Society.

The fear of storms and lightning, astrophobia, may appear in much the same way. Some patients are so sensitive that they become nervous and depressed before storms and can predict them as do rheumatic and neuralgic sufferers.

Fear that the heart may stop, or that the breathing may cease, are also serious types of morbid fear. The patient is always feeling the pulse and asking for an examination of the heart and an assurance of its soundness.

The number of fears is almost as great as the number of objective things. There are also many "occupational fears," such as that in which the barber fears to use his razor, the tailor to cut the cloth, and the business man to sign checks. These symptoms may extend over the course of a few months to several years. If properly treated the patient recovers, with a tendency to relapse.

The doubting mania may seize a girl who is about to be married, and engagements are repeatedly broken. Often doubting mania is shown in connection with the fear of fire, burglars or gas. The patient arises at night a dozen times to see that the gas is turned off, to see if the doors are locked, to look under the bed, or other things. These doubting states are often not very serious and are at times associated with alcoholism.

Obsessions and fixed ideas often relate to trivial things. In the obsession constitution the association machinery seems to become clogged and ideas tend to "stick" perniciously in the mind. A slight suggestion or remark casually made with some especial rhythm or emphasis stays or bothers the patient. More often there are one or more ideas which remain and torment him. They are unpleasant ideas of possible mistakes made or injuries thought to have been done. They are usually absurd, and the patient knows perfectly well that they are so, but they cannot be shaken off. They dominate and harrass the sufferer who feels really "possessed." They lead to insomnia, nervous restlessness, hysterical outbreaks, and crises of the abdominal viscera, with diarrhea and polyuria. Yet often the patient, if naturally intelligent and sensible, will keep himself under control and show most of the time no emotion or evidence of suffering.

These fixed ideas may attack a person periodically for years, or may after a few months disappear, not recurring at least to any extent. Shocks, acute sickness and depressing experiences will bring them to the surface.

Impulsive psychoneurosis is the condition in which impulses spring suddenly into consciousness, and acts follow at once without the patient being able to resist them. The morbid impulse may be very slight and harmless, such as a desire to touch every lamp post passed on the street, to step on alternate stones of the pavement, to put the left foot first in going from a room; or they may lead to violent acts such as murder, theft or arson.

When a morbid impulse rises into consciousness and is held more or less under restraint, it is called a compulsion. When impulses and compulses involve a larger psychical sphere, we have the various conditions known as kleptomania and pyromania, homicidal and suicidal mania; but here, along with defective inhibition, there is often a morbid degree of criminal instinct, or there may be present another psychosis, such as mania, melancholia or paranoia.

Hypochondriasis is a term applied to a morbid mental state in which the patient thinks he is suffering from some physical disease. It is a much used and much abused term, and I believe it only a syndrome which occurs in psychasthenia and neurasthenia and not a separate disease.

Psychasthenia associated with morbid fears and doubting manias occurring in early life is a serious condition. If taken early in hand and placed under rigid control the patients have an excellent chance of recovering in one or two years, but if not properly treated or managed the trouble becomes fixed, some mental deterioration develops and a chronic condition results.

It is common and serious mistake of the medical profession to give little or no consideration to these unfortunate sufferers, and as a result many of them with milder forms of the malady, seeking relief and sympathy, fall into the hands of quacks and charlatans; and in a few months they return to us boasting that they are completely well and have become full-fledged Christian Scientists or have embraced some of the other cults.

Case I.—O. L. A., male, white, aged 32 years; parents living and in good health; neurotic history; physical findings negative. This man began to complain of pain in the occipital region early in October, 1920. He was at that time away from home; was worried because of a light which appeared in his room on the wall; he termed it a "death-light," and sat up all night for fear it would injure him. This light came and went. His family heard of his trouble and had him return home. Because of restraint placed upon him by the family he obtained a knife and tried to injure them. He was placed in an institution for treatment and safety. At present he is apparently rational with the exception that he believes his wife is married to another man; that his son is dead, and fears that he is to be castrated.

Diagnosis: Psychasthenia, morbid fears predominating.

Case II.—L. B., male, white, aged 30 years; father died of chronic alcoholism; mother living and in good health; physical findings negative except a two-plus Wassermann which may have some bearing on his present mental condition, but doubtful. The patient finished only sixth grade at school, although he had the best advantages and could have completed his course. He served in the army, but was not shell-shocked. He was assistant chief of fire department in his home town of about 5,000 inhabitants for thirteen years. During the past year prior to February, 1921, he assisted in numerous fires which were of an unaccountable origin. Finally he was suspicioned and twenty-two fires were blamed upon him. He was brought to Louisville and when the first opportunity presented itself he fired another building, which he, of course, denied, but circumstantial evidence was sufficient.

He was examined and pronounced a pyromaniac and sent to Lakeland.

The following is a verbatim copy of the psychological findings: "On March 22, 1921, I examined L. B. I found this man to measure ten years and nine months mentally with a chronological age of 30. The significant feature of the examination was the "scattering" of the test performances. By that I mean that they extended over a wide range of mental levels. They extended from the eight-year level up to and including the fourteen-year level. I was suspicious at first that he might be malingering, but I doubt if this was the case. During my examination he was restless. His voice trembled at times, and he was easily moved to tears. This was evidently part of his attempt to dramatize the situation and occupy the center of the stage. He was desirous of making a good impression upon me and was of the sympathy-seeking type. He at first said that he had finshed the eighth grade, but later admitted that he had never gotten farther than the sixth grade. I find that he was married twice and divorced on each occasion. I think it is significant that his father was alcoholic and died when he was on a drunken "spree."

He, of course, denied all guilt in connection with the present difficulty. He says that he thinks that the charges against him are the results of ill will toward his uncle, E. B., who has some official position in R. and has political enemies. I did not make it clear whether this was part of a delusional system or was founded on fact.

The scattering on psychological tests is usually significant of psychopathic conditions. I was impressed with this man's general inferiority, his emotional instability and his ego-centric personality. I was unable to elicit anything particularly significant regarding his sex life except that he admitted gonorrhea before his first marriage, when he was about seventeen years of age. He admitted heterosexual experiences with a fair degree of regularity, but I did not elicit any history of perversions.

Diagnosis: Constitutional inferiority, a moron, with psychasthenia.

DISCUSSION:

W. E. Gardner: In the early part of Dr. Scott's paper he set forth very clearly the general conception of phychasthenia which is characterized by morbid fears, doubting mania, impulsive acts, and imperative ideas. These cases are, as a rule, quite typical, when seen, However, they are not very frequent.

In psychasthenia the fears which the individuals have are quite different from the fears observed in the ordinary psychoses. For instance, the fear of persecution in dementia precox, or the idea of sin in melancholia that may cause the patient to do himself harm, are real delusions, and the individual is irresponsible. The fears in psychasthenia are noted by the patient himself as being unreasonable and ridiculous, whereas the fears in the more severe forms of the psychoses or acute insanities seem quite real to him. The psychasthenic is unable to throw off the fears and impulses that he has, however, and the condition is one which overwhelms him, as it were, and may increase from month to month or year to year.

It has been said by Janet, who wrote on this subject in 1903, who was perhaps the first to give a clear conception of the disorder and give it a definite place in the classification of the psycho-neuroses, that the condition is due to a lowering of the psychological tension; a condition somewhat akin to that of epilepsy. In epilepsy we have a sudden or acute lowering of the psychological tension; the patient has a paroxysm, there is a temporary loss of consciousness, he then recovers and again becomes normal; whereas in psychasthenia there is a chronic lowering of the psychological tension, a sort of an attenuated epileptic condition, as it were. With all this, however, we know very little about the etiology, except that it is a condition which occurs in patients with neurotic tendencies. In nearly all cases there is a history of a nuerosis or a psychosis in the family, and a hereditary influence is said to be present in 60% of cases.

Some of the phenomena are very interesting and even amusing at times. I have had two or three such cases under my care during the last year or two. I recall one young man who was afraid to walk around the square, believing that some great harm would befall somebody within the block if he made a complete circuit around it. Another young man now under observation is afraid to attend church, because he says that when he arrives at the church he cannot decide what door to enter, if there be more than one. If he should go into the wrong door he fears some great disaster would befall some member of the congregation. Another patient showed typical fear of germs and contamination from dirt, and the hands were washed twenty to forty times a day. The young man just mentioned, and who is still under observation and treatment, has been given luminal recently, and some fairly definite favorable results seem to have been obtained. On account of a certain similarity of this condition to that of epilepsy, as indicated above, and knowing that good results have been obtained from the use of luminal in epilepsy during the past two or three years, numerous cases having been reported where benefit was derived, I tried the experiment of giving this man two and one-half grains of luminal twice a day. It seems to have accomplished more good than anything else he has ever taken, and he now has fairly normal mental control. He had been so afraid to go out of the house, thinking he would make some mistake or harm would come to someone on account of him, that I was surprised recently when he told me that he would like to make a trip to Lexington, Ky., and meet some of his old college mates and fraternity brothers. He was allowed to go and remained there for several days and had no trouble at all. He met a number of his fraternity brothers, and told me that they all went out together, got on a little alcoholic spree, and that he became a "regular fellow" again. He is not a man who has been addicted to the excessive use of intoxicants so far as I am aware, but says that he has taken a "social" drink now and then. When he returned he said that he was feeling fine, and has been doing very well ever since. I am surprised how much this patient seems to have been benefited by the use of luminal. We do not know very much about the treatment in many of these cases. Unfortunately, they are inclined to be progressive and chronic.

Psychoanalysis has been recommended in such cases, but I have had no personal experience in the use of it. I do believe, however, that these are the kinds of cases that might be benfited by careful psychoanalysis, especially if the attacks appear early in life. That is, if on account of some painful experience a child may have suffered, this experience has been repressed into the unconscious portion of the mind, that it may be responsible for some of these attacks, and sometimes by a rational psychoanalysis the cause may be unearthed and laid before the patient, and after he understands what was the original cause of his trouble it will disappear. I have never attempted to treat this class of patients by psychoanalysis, and believe that the method is very much overrated in many instances. Perhaps, however, some cases might be benefited, and this is one of the types that might prove amenable to this plan of treatment.

Some of these patients with psychasthenia seem to recover spontaneously, without any particular form of treatment, but general hygienic care with plenty of rest or change of occupation is always indicated, and many patients have been greatly benefited by the supervision and regular routine of institutional life.

John J. Moren: The subject of psychasthenia is important and interesting to the neurologist and should be accorded greater attention by the general practitioner. I recall that some twenty years ago the diagnosis of psychasthenia was seldom made; the disorder was at that time spoken of as neurasthenia, hypochondriasis and hysteria. Very infrequently did we encounter such a case in the male sex; in fact, rarely did we see a case of extreme nervousness in the male; it was taboo. Now, however, it is quite different; the majority of the cases of psychasthenia and many of the morbid impulses are manifest in the male sex and these disorders are not seen so frequently in the female. Why conditions have changed is difficult to explain, unless we accept McDougall's statement that our future depends upon our heredity and upon our ideas. The real future of the individual depends upon heredity and the environment of his nervous system. An idea is one of the environments of the nervous system, and I have seen a number of instances of psychasthenia where an idea could be traced backward to early childhood, where that particular idea had simply dominated until the nervous system had become weakened or lowered intension and under the stress and strain of our modern civilization the patient "went to pieces."

I recall a prominent lawyer in Kentucky who had a rather checkered career, but he was a capable attorney, was successful and made money. In trying to trace the origin of his trouble we found he had experienced many disappointments; he had to forego many desires and expectations on account of various circumstances over which he had no control; he had one shock after another until he finally became so morbid that he could practically do no work. Fearing he would kill himself, he was afraid to stay alone in the house; he could not sleep, could not eat, he could not do anything.

Strange to say, and this is in keeping with Dr. Gardner's statement, some of these people appear to have periods of exacerbation—good and bad days. I have never associated the psychasthenic state with epilepsy. The characteristic feature of epilepsy is periodical attacks. The victim of psychasthenia has his ups and downs, but the disordered mental state is constantly present; it is not periodical. In other words, psychasthenia is nothing more nor less than an exaggerated condition of the normal psychology. The way we feel, we think, and the way we think, we act. This is normal psychology. Psychasthenic individuals simply go to extremes, they become depressed, and they feel the depression more than other persons. Doubtless all of us have certain fears; we fear high places, we fear the dark, etc., but the normal individual masters and controls his fears. The psychasthenic cannot control his fear.

So far as the etiology of psychasthenia is concerned we know very little. Certain authorities state that anywhere from eighty to ninety per cent of cases are dependent upon heredity, but I am certain that I have seen a number of instances of psychasthenia occurring after severe shock and also after food poisoning. I recall one typical case in a Louisville woman who had a strong heredity and was a perfectly healthy individual, both physically and mentally. She had an attack of ptomaine poisoning and for three or four years afterwards was one of the most miserable individuals I have ever seen; she suffered persistently from psychasthenia with morbid fears. I believe it was due to the shock of food poisoning.

I now have under observation four or five patients with pronounced psychoneurosis or psychasthenia following the extraction of teeth. I have seen eight or ten cases during the last few months with such a history. How to account for it I do not know. Whether infection had anything to do with it, whether the extraction of teeth had anything to do with it, I cannot say.

In regard to treatment: So far as psychoanalysis is concerned, I do not believe in it and do not practice it, but do think it is wise to have a heart-to-heart talk with the patient. By delving into the past history of the individual oftentimes conditions will be found to explain the development of his fears, obsessions, etc.

Not long ago I had under observation a gentleman who feared he would do harm to somebody, either to himself or some member of his family. He had a neurotic history; he saw his own brother commit suicide; and whenever this man got below par that picture recurred to his mind. Business reverses depressed him, he worried for a long time, and finally developed the fear that he was going to harm himself or some of his family. I tried to explain the situation to him; told him how he could control himself; that his fears were not real, etc., and today had a very encouraging letter from him. He stated that he was now able to control his fears and his mental state was improving.

So far as the sex idea is concerned, the Freudian theory, I cannot accept that. However, many men have accepted this theory and claim to have secured excellent results from psychoanalysis in certain types of cases; but I am sure that I have seen psychasthenics made worse by so-called psychoanalysis. I believe in occupation, three square meals a day and in play. If we can get these individuals to work and play, to divert their attention to something else instead of themselves, much good can be accomplished.

Typhoid Pyelitis.—Archard says that when a typhoid convalescent voids turbid urine, a few drops of acetic acid will clear it if the turbidity is from phosphaturia. If not, bacteriologic examination is indispensable for vaccine therapy, but the pyelitis cannot be certainly diagnosed without catheterization of the ureters. It is important to determine the capacity of the kidney pelvis; if it is more than 6 or 8 c. c., this indicates distention. If there is no retention or distention, treatment must be merely medical; otherwise the pelvis must be rinsed out. If there is no pronounced dilitation, the silver nitrate solution cures completely. When the pelvis has been stretched to 20 c. c. or more, it rarely recuperates completely, and conditions invite reinfection later, generally from the colon bacillus. The dilation of the pelvis is thus the guide to treatment and prognosis.

Vision Without Eyes.—Cantonnet describes the research of Farigoule who bandaged his eyes light proof, and concenerated his attention on perception of light for fifty hours. He then found that he could perceive light and even perceive large and shining objects. Similar experiences were obtained with the blind, and he attributes this vision without eyes to Ranvier's sensory cells which have a nerve connection with the brain centers. Cantonnet has been applying the same technic to four blind persons, but the results have been negative to date.

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ANNUAL MEETING, PADUCAH, 1922.

COUNTY SOCIETY REPORTS

Carlisle.—The Carlisle County Medical Society met in Dr. Dunn's office at 4:30 p. m., with President J. H. Hocker in the chair.

After divine invocation by Rev. Drake, the minutes of the previous meeting were read and approved.

The following committee on necrology was appointed: Drs. Dunn, Marshall and Gilliam.

The committee on arrangements reported that they had secured Dr. Dunn's office for place of meeting and that the Hotel Victor will prepare supper.

W. L. Mosby read a very interesting paper on "Symptomatology of Disease of Rectum." In the absence of Dr. Gilliam, Dr. Dunn opened the discussion on Dr. Mosby's paper.

W. Z. Jackson having failed to prepare his paper on "Treatment of Disease of Rectum," Dr. Dunn was asked to open the discussion on Drs. Mosby's and Jackson's papers. These papers were discussed by Drs. Marshall, Hocker and Payne, Dr. Mosby closing.

G. W. Payne read a paper on "Diagnosis and Treatment of Syphilis,' which was discussed by all present.

The place of meeting was left open.

Members present were: Drs. Hocker, Jackson, Dunn, Mosby, Marshall and Payne.

Adjournment to meet first Tuesday in June.

GEO. W. PAYNE, Secretary.

Carlisle.—The Carlisle County Medical Society met in its annual session at Bardwell in the offices of the Bardwell Clinic, with the President, Dr. Burrow, in the chair.

After divine invocation the minutes of the previous meeting were read and approved.

J. F. Dunn read a very interesting paper on "Diagnosis and Treatment of Diphtheria." Emphasizing three important things. First, many cases never consult a physician and hence are not recognized. Second, error in diagnosis, and third, lifting the quarantine too soon. The paper was thoroughly discussed by all present.

Adjourned for dinner.

J. F. Dunn closed the discussion of his paper on diphtheria.

T. J. Marshall read a very interesting paper on "Puerperal Eclampsia," with report of a recent case. This paper brought out a thorough discussion by all present.

R. T. Crouch read a very interesting paper on the "Iodides," which was discussed by all present. The discussion drifting to the iodides in syphilis plus salvarsan and neosalvarsan.

Motion carried to meet in Arlington first Tuesday in March, 1922, at 4 p. m.

Motion carried to go back to old way of secretary paying his own dues.

Motion carried for secretary to cast vote of the society for president, Dr. R. T. Hocker. Dr. Gilliam was elected vice-president and Dr. Payne elected secrtary and treasurer. Dr. Jackson elected delegate to the State Society.

Every practicing physician in the county was present except one.

Society adjourned.

GEO. W. PAYNE, Secrtary.

Bell.—The Bell County Medical Society indorses the following:

Whereas, The public and profession are being sold out to:

(1) Foundation control of "full time" medical education.

(2) Lay board domination and the "closed shop" hospital.

(3) Localized state medicine, subsidized community health centers and hospitals under political or university control.

(4) Legislative dictation of therapy and fees.

(5) Demoralization of medical standards of the expansion of cults.

(6) Exploitation of the specialists by lay technicians.

Therefore be it Resolved, That all the delegates of the Kentucky State Medical Society to the A. M. A. meeting in St. Louis, Mo., May 22-26, 1922, are hereby instructed to vote for:

(a) A change of policy and leadership in the A. M. A. pledged to the immediate abolition of the evils mentioned, and constructive protection of medical interests.

(b) The repeal of multiple representation and plural voting privilege by section delegates.

(c) The election of trustees for a period of two years, five trustees to be elected one year and four the next, to prevent trustees from perpetuating oligarchical rule.

Be it Further Resolved, That copies of these resolutions be sent at once to the official organ of the Kentucky State Medical Society, the Journal of the A. M. A. and the Medical Advisory Committee.

J. G. FOLEY, Secretary.

Knox.—The Knox County Medical Society met in the office of Dr. L. Logan and elected the following officers for the ensuing year: Leslie Logan was elected president, John G. Tye vice-president, Frank R. Burton, secretary and treasurer. F. R. Burton was also elected delegate to the State Medical Society for the ensuing two years. The society then took up a discussion of the proposed medical legislation now before the Kentucky State Legislature and unanimously agreed to follow our great leaders, the Drs. McCormacks, in upholding the medical profession in Kenutcky. Regular monthly meeting fourth Friday night in each month, at 7 p. m.

F. R. BURTON, Secretary.

Harrison.—The Harrison County Medical Society held its regular monthly meeting at Elks' Club room, February 6, 1922. Members present: Drs. Wells, Wood, Blount, W. H. Carr, Rees, Havland, Carr, N. W. Moore, Melvain, McDowell, Martin, Becket, W. B. Moore, Givens and Dr. Lipscomb, of Georgetown.

Meeting called to order by J. E. Wells, and minutes of January meeting approved as read.

R. W. Wood reported number of cases resembling influenza, discussed by Drs. Carr, Wells, N. W. Moore, Rees and Martin.

J. M. Rees made supplementary report on case of tuberculosis of cervical vertebrae.

W. N. Carr reported case of whooping cough complicated by intestinal hemorrhage.

By unanimous rising vote the secretary was instructed to telegraph our representative this resolution: The Harrison County Medical Society unanimously indorses House Bills 65, 33 and 23, and deplores the fact that you are misrepresenting your county by supporting House Bills 251 and 307.

By same vote secertary was instructed to send telegram to our Senator congratulating him on his hearty support of Senate Bills 36, 39 and 93.

J. M. Rees read a paper on "Diphtheria." Discussion opened by Dr. Lipscomb, followed by Drs. Martin, Wood, N. W. Moore, Carr, Beckett, Wells and closed by Dr. Rees.

Meeting adjourned.

W. B. MOORE, Secretary.

Christian.—The Christian County Medical Socoiety met in regular session at 1. p. m., after having dinner at the Hotel Latham.

Members present were: Drs. Stites, Gaither, Gary, Rice, Durham, Harned, Perkins, Sargent, Dade, Haynes, Reynolds, Rozzell, Morris, Bartley and Sanbach.

In the absences of both the president and vice-president, Dr. Stites was asked to preside and was afterward called to his office and Dr. Gaither took the chair.

After the reading and adoption of the minutes of the last meeting Drs. Gary and Sandbach made reports of the recent Lexington meeting.

W. W. Durham, Superintendent of the Western State Hospital, read an excellent paper on "Psychiatric Case History Records.' The doctor presented a case record from his files and demonstrated thoroughly that his system was up-to-date.

Drs. Dade, Sargent, Perkins, Haynes, Gary, Gaither and Sandbach discussed the paper at length.

W. W. Durham said in closing that he hoped to soon install an up-to-date laboratory where all his work could be done at home.

W. S. SANDBACH, Secretary.

Shelby.—The Shelby County Medical Society met in regular session Thursday evening, January 19, 1922, at 7:30 p. m., in the county court room of the Shelby County court house. The officers who were elected at the December meeting were as follows: President, A. C. Weakley; Vice-President, W. P. Forman; Secretary and Treasurer, Vernon R. Jones, were present, as was the following members: Harmon, Nash, W. P. Hughes, C. C. Risk, E. J. Eversole, Joe Perrin, Lowry Beard.

The health bill, as proposed by the State Board of Health, came up for considerable discussion. A letter from A. T. McCormack calling a meeting at the Lafayette Hotel for Saturday, January 21, at 9:30 a. m., was read before the society. A vote being taken it was found that the society was unanimously opposed to the passage of this bill, with the amendments as proposed, and being unable to persuade a delegate to attend the Lexington meeting, the secretary was instructed to write Drs. A. T. McCormack and tell him of the society's opposition to the bill.

Program for 1922 came up for consideration.

Whereas, 1920-1921 the society did not have any paper read before its members, and as there seemed to be a lack of interest among the members, it was voted to resume the reading of the papers, and a committee was appointed by President A. C. Weakley to prepare a program and entertainment for 1922.

Lowry Beard will read a paper on "Digitalis" at the February meeting.

W. P. Foreman in discussion of the subject of diphtheria said that in giving antitoxin he never got any results unless he got an elevation of temperature after giving it.

Joe Perrin reported that he had never lost but one case of diphtheria where hah given antitoxin.

Motion was made that owing to the serious illness of one of our absent members, Frank Beard, that the society send him a floral offering. This was seconded and passed.

A letter from Mrs. T. J. Hower, of Pleasureville, was read before the society expressing the family's appreciation of the floral offering which the members sent, on being informed of the death of its former member, Dr. T. J. Hower.

Motion was made seconded and passed that the society send resolutions of respect to Mrs. T. J. Hower and family. The president appointed the following committee to act: Hughes, Beard and Jones.

Medical fees came in for considerable discussion.

Motion was made seconded and passed that fees remain as at present.

Delinquent list of patrons was discussed and plans discussed for handling same. One plan offered was that all members present their delinquent list to the county secretary, and that he arrange the names alphabetically and classify them, according to their standing, and to whom they were indebted and have copies printed and distributed to the members.

Motion was made, seconded and passed that the society adjourn to meet again Thursday, February 16, at 7:30 p. m., at court house, Shelbyville. VERNON R. JONES, Secretary.

Christian.—The Christian County Medical Society met in regular session Tuesday, January 17, at 10:30, with President Austin Bell in the chair.

Those present were Drs. Bell, Gaither, Caudle, Wright, Williams, Stites, Barker, Gary, Sargent, Rozzell, Reynolds, Sandbach, Rice, Woodard, Morris, Honaker, Barnes, Durham, Harned, Haynes, Dade, Erkiletian, Riley and Jackson.

After the reading and adoption of the minutets of the last meeting, by a unanimous vote the State and County dues for 1922 were raised from $5.00 to $6.00, and seventeen members paid their dues.

The secretary read the correspondence from the State Secretary calling a meeting of the House of Delegates of the State Society on January 21, at Lexington, to consider pending legislation now before the General Assembly. Drs. Sanbach and Gary were selected to attend this meeting.

J. G. Gaither addressed the society on "Christian Science in a New Mask." He had attended several presentations of a picture at one of our local picture houses and that he might be corroborated in his views he had asked five of the leading ministers of the city to attend with him. They did and three of the five saw the picture as he did. That Christian Science had failed to reach the public as desired, as a religious body, was now endeavoring to reach the public through the movie, the New Mask.

B. A. Caudle addressed the society on "The Trend of the Times From a Medical Standpoint." This subject the doctor handled to the full satisfaction of all present. His recitation of facts, experience and humor brought about one of the most enjoyable and profitable periods in the history of the society.

M. W. Rozzelle's resolution on "Darwinin Hypothesis," was postponed till a later meeting.

A the conclusion of this program we retired to the Hotel Latham where a delightful dinner had been peraperd for us at 1 p. m. and ample justice was done.

W. S. SANDBACH, Secretary.

BOOK REVIEW

A Text-Book of Physiology: For Medical Students and Physicians.—By William H. Howell, Ph. D., M. D., Professor of Physiology, Johns Hopkins University, Baltimore. Eighth Edition, Thoroughly Revised. Octavo of 1053 pages, 303 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $6.50.

During the three years that have elapsed since the last edition of this book much has been added to our knowledge by the results of physiological research, and, on the other hand, something has been subtracted by the modification or elimination of untenable statements and theories. There has been no fundamental change, no epoch-making discovery, but there has been the usual constant shifting in points of view as our knowledge has widened and as the results of the advances in other branches of science have found their application in physiology.

The author has attempted, as far as possible to follow and interpret these changing phases and thus keep the book in touch with current progress. Matter that seems now to be irrelevant has been stricken out, and the newer ideas and terminology have been introduced.

Some new figures have been added and an effort has been made to emphasize the hygienic application of physiology wheverer it seems to fit in appropriately in the plan of presentation. A full treatment, however, of this side of the subject requires a text-book of its own.

The science of physiology has found most important applications in the fields of pathology and clinical medicine, but, unfortunately, its more natural relations to the maintenance of the health of the individual have been neglected. Publications upon personal hygiene are in large part unscientific compilations that serve to perpetuate baseless traditions or to disseminate the vagaries of irresponsible faddists. A critical scientific presentation of the subject is obviously a difficult undertaking, requiring a wide and sound knowledge of pathology and medicine as well as physiology, but something of the kind is much needed to clear the ground and to indicate the directions along which experimental inquiries should be made.

Diseases of the Skin and the Eruptice Fevers—By Jay Frank Schamberg, M. D., Professor of Dermatology and Syphilis, Graduate School of Medicine, University of Pennsylvania. Fourth Edition Thoroughly Revised. Octavo of 626 pages, 625 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $$.00 net.

The present volume has been revised and to a certain extent amplified in order to bring it abreast of the advances in dermatology made since the publication of the last edition.

Brief new chapters on a number of the rarer dermatoses have been included, and extensions and modifications of the text of other chapters have been made.

The treatment of syphilis has been entirely rewritten. The great importance of this subject makes it incumbent that the text should reflect the present-day views upon the ever-changing aspects of therapy.

Indeed, editions of books are scarcely published with sufficient frequency to portray the rapid modifications of medical judgment with respect to the treatment of choice. This is due to the fact that the procedures employed and even the selections of the most eligible drug are still controversial matters.

American Illustrated Medical Dictionary—New (11th) Edition. A medical dictionary, to be of maximum service, should be more than merely a storehouse of words and definitions—it should render a broader service, an encyclopedic service. The American Illustrated Medical Dictionary concisely and clearly defines every important word, hundreds of new ones not found in any other medical dictionary, and contains a wealth of other useful information. Octavo of 129 pages, with 327 illustrations, 115 in colors. Flexible binding, $7.00 net; thumb indexed, $8.00 net. W. B. Saunders Company, Publishers, Philadelphia and London.

NEWS ITEMS AND COMMENTS

Dr. Guy Aud announces the removal of his office to suite 914 Francis Buildingg, Louisville, Ky. Office hours, 1 to 3 and by appointment. Surgery and surgical diagnosis. Telephones Main 731, City 4260.

Dr. Octavus Dulaney announces the removal of his office to 666 Francis Building, Louisvville. Specialty, ear, nose and throat. Hours, 10 to 2.

Frank W. Rounds, D.D.S., formerly of Louisville, clinical associate of George B. Winter, D.D.S., of St. Louis, announces the opening of offices in the Professional Building, 270 Commonwealth Avenue, Boston, Mass., for the practice of exodontia and radiodontia exclusively.

The Southwestern Kentucky Medical Association annual meeting will be held in Paducah, Tuesday and Wednesday, May 9 and 10. The secretary, Dr. Vernon Blythe, has arranged a splendid program and a full attendance is expected.

During February the followingg articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in the new and nonofficial remedies: Persson Laboratories—Bacillus Coli Antigen (No. 50), Persson; Furunculosis Vaccine Mixed (No. 37), Persson; Gonococcus Antigen (No. 47), Persson; Staphylococcus Aureus Antigen (No. 49), Persson; Streptococcus Antigen (No. 48), Persson; Pneumonia Vaccine (No. 36), Persson. Powers-Weightman-Rosengarten Co.—Novarsenobenzol-Billon. G. H. Sherman—Whooping Cough Vaccine, Sherman; Mixed Typhoid Vaccine, Sherman; Acne Staphylococcus Vaccine, Sherman. Winthrop Chemical Co.—Alypin.

The dates for the next two examinations of the National Board of Medical Examiners are as follows: Part I and II, June 19, 20, 21, 22 and 23, 1922; Part I and II, September 25, 26, 27, 28 and 29, 1922.

Applications for the June examination should be in the secretary's office not later than May 15, and for the September examination not later than June 1. Application blanks and circulars of information may be had by writing to the secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

THE FORUM

Little Rock, Ark., March 1, 1922.

To the Editor:

The motif of our coming annual session to be held in Little Rock, May 17-19 next, is to be "the home-coming meeting," and we are very desirous of informing our old time doctors from Arkansas, now practicing in other states, of this feature, and stressing the fact that we shall expect them to be with us at the time indicated. This will be especially applicable to those desiring to attend the A. M. A. meeting at St. Louis, as they can stop off with us, renew old acquaintances and resume their journey.

We shall appreciate it very much if you will carry a suitable news item in your journal, setting forth our good intentions, that those in your state may be reminded of the invitation extended to them.

This may seem unique, but in the ever-changing present the unexpected happens daily. Therefore, we are relying on the cooperation and active assistance of our friends in putting this meeting over.

Thanking you in advance for any courtesy you may be able to extend, and trusting that we may have the pleasure of a visit from you along with the others from your state, we are most cordially yours,

Wm. R. Bathnost,
Secretary-Editor.

To the Editor:

A few weeks ago a representative of the National Adjusting Association of Chicago called on me, stating that their method of collecting was by direct contact, and under no circumstances did any corresponding.

With that understanding I gave him some of my accounts, and in some way, when I was not present, he secured other of my accounts, and in a short time I discovered that they were resorting to the same old correspondence game.

I wrote the company that these accounts were obtained fraudulently, and for that reason I considered the contract automatically cancelled. I also notified my clientele to pay no attention to their letters.

They still insist on hounding my clientele and myself, insisting that this particular representative is one of their best men.

I feel that this information should be handed out to the doctors of the country through the columns of the Journal.

Very truly yours,

O. K. Bond, M. D.
Ashland, Ky.

KENTUCKY MEDICAL JOURNAL

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EDITORIAL

OUR RECENT LEGISLATION

Never before in its history had the medical profession of Kentucky and the varied activities operating under its supervision, including the State Board of Health, which has always been considered and has always considered itself as being little more than an executive committee of the several state associations officially represented in its membership, occupied a higher place in public and legislative esteem than during the two years preceding the session of the General Assembly recently adjourned; and yet, in spite of the fact that in the end we received more liberal appropriations and better support than any other branch of the state government, we regret to say and to be forced to explain, as we will freely and frankly do, how, with such an auspicious beginning, never before has the profession and its interests, and the medical and health interests of the people for which it stands, been in greater peril than during the middle half of the session.

And the high estimate which was ours at the beginning of the session had been laboriously and honestly earned. Our medical laws had been planned upon such broad, constructive lines, and enforced with such kindness and firmness, as to give our people greater protection against the ignorance and dishonesty of quackery than had been found possible in any other state in the Union. Later the agreed drugless practice act, passed at the 1920 session, with the promise of even-handed justice to every individual and system of practice to which it applied, brought under the provisions of law the adherents of any and every method of diagnosticating or treating human ailments, infirmities, defects or deformities now in existence or which hereafter may be devised, and is being so wisely and liberally administered as to give promise of almost ideal results if permitted to stand until it can be fully tested out.

This intelligent recognition of the work being done by the state, county and city boards of health, by the women's clubs, Red Cross Chapters, welfare leagues and good citizens generally, as well as the economy and good judgment exercised in the disbursement of the generous appropriations from the state, national government, National Tuberculosis Association, American Red Cross, International Health Commission and other philanthropic agencies, resulting from such recognition, could hardly be better or more tersely expressed than is done in the biennial report submitted to the opening session of the General Assembly by Hon. Henry E. James, State Inspector and Examiner, easily one of the most capable and painstaking men who has ever filled this highly responsible and exacting position. The report was based upon a six weeks personal investigation of the financial, economic and efficiency affairs of the board, and is such a comprehensive, explicit, yet fair treatment of the whole subject, that it has been decided to re-publish it in full in this issue of the Journal, with the earnest request that every member not only make such a careful study of it that he can and will try to have it read and discussed in his county society and at meetings of farmers, women's clubs, teachers, laborers and ministers, and then file and preserve it for future reference.

In fact, this era of good feeling was so general, both within and outside the profession, that but for occasional letters or verbal complaints about a scarcity of physicians in the rural districts, and wisely looking to the future, that there were so few or no medical students from their respective counties, and, where there were any, seldom one who gave promise of practicing in the county, as to give cause for concern to those in any way responsible for disturbing professional conditions of any kind. At first these complaints were only occasoinal, but later they became so frequent and urgent, and, usually being from the older and more thoughtful members. often from county referees or health officials, who had gratuitously served the Board or Association in an advisory capacity for a generation, they began to demand consideration. One such letter, selected as fairly representative, from a level-headed, conservative man, who had been the trusted, faithful referee and health officer of his county in the central part of the state for twenty-six years, who was always in attendance and usually the delegate at the state meetings, reads as follows:

"Mount Vernon, Ky.
"January 13, 1922.

"Dr. J. N. McCormack, Director, Law Enforcement Bureau, Louisville, Ky.

"My Dear Doctor: I notice in the daily papers that there is a bill to be presented at the present session of the legislature, intended to relieve the present shortage of physicians in the rural districts. Let me say that I am heartily in favor of some move of this kind, but cannot express myself intelligently until I have seen the bill as drafted, and am writing to ask that you send me a copy, or extracts of same, if possible.

"This shortage may not seem alarming to the profession in the cities, but I am frank to say that I do not know what is coming to the rural districts unless something is done. Taking our county as an example, we have about ten physicians, with all the work they can do, all middle aged men and some beyond. To my knowledge we only have one student from Rockcastle County, in a premedical school at this time, and we have no assurance whatever that he will locate here. Then, too, at the earliest, it will be six years before he will be eligible to begin practice under the present law.

"Such situations as this need no explanation as to what will happen in the near future unless some means of relief is provided.

"Hoping you are well and have not been bored by this, for me, lengthy letter, I am, awaiting your reply,

"(Signed) A. G. LOVELL,
"Medical Referee."

A PLOT TO BE NAILED.

(Editorial in the Courier-Journal, August, 29, 1921.)

"What looks very much like a plot to form a monopoly of schools of law, and to exclude from the close corporation all law schools which are available to poor young men who cannot afford a college education is exposed by Edward T. Lee, a Chicago lawyer of high character and standing, in a tract, which asks: "Is there a Greek horse at the American Bar Association gate?"

The Bar Association holds its annual meeting at Cincinnati in a few days and it is there that an effort will be made to saddle it with the scheme, which is evidently being headed by the Association of American Law Schools, paving the way for domination of the country's legal education.

At last year's meeting of the Bar Association, by an ingenious coup, the fathers of the present scheme succeeded in obtaining a packed committee of their own ilk which is now prepared to issue its report.

The report, according to Mr. Lee, has three principal recommendations: (1) An applicant for bar admission should have spent two years in college before entering a law school. (2) That he should then pursue the study of law for three years in a law school requiring at least two years of studying in a college for admission. (3) That a number of teachers of such law school should give their entire time to the school.

At first glance, this is an effort to maintain a high standard in the legal profession. But microscopic scrutiny is not necessary to discover that it is a smug attempt to deny admission to the bar to those who cannot afford to spend two years in college.

Whatever may be the motives behind the gentlemen who are fostering this radical change in legal education, the fact remains that its adoption would work extreme hardship on thousands of worthy young men. The evening law school, which has produced many able lawyers, would have to be abandoned. And the fate of the evening law school, so typically American and such a large factor in the lives of poor men, must not be left to the caprice of a few men whose idea of making a lawyer is to run him through a preordained scheme of things and hand him an LL.B. and a halo.

The several states have for years regulated bar admission. The State Bar Examinations have been passed most creditably by the evening school men. Indeed, very often he surpasses his more fortunate brothers who entered the law via prep school and college. If admission to the bar should be made more stringent, that is a matter for a state to attend to and not for the vitally interested Association of American Law Schools, acting either alone or behind the apron strings of the country's representative legal association.''

THE MEDICAL PROFESSION.*

''To the Editor of the Courier-Journal, August 31, 1921.

You had an editorial in your paper yesterday headed, ''A Plot to be Nailed.''

I want to endorse every word you said in the editorial opposing a scheme to raise the standard so high in the law profession in order to cut the poor boy out of the profession.

Now, Mr. Editor, has not the Medical practice, or rather the American Medical Association, already raised the standard so high in our medical schools that makes it impossible for the farmers' sons to enter the medical profession?

You take this county for example. We have only one or two more physicians in the whole county than we had in our county seat, Elizabethtown, twenty-two years ago. I know of no physician in this county under forty years of age.

What few boys in this county who have entered the medical profession in the last fifteen years have been sons of wealthy parents and have gone to the city to practice their profession. In the course of ten or fifteen years the people in the rural districts are going to be without physicians.

I would like to hear from you on this question, also anyone else who has given this question a thought.

(Signed) Charles A. Nelson.

White Mills, Kentucky.

We knew something of the nation-wide talk on this subject in the Journals, but thought at first, and still think to a degree, that these conditions were exagggerated, or at least exceptional, and due rather to a faulty distribution than to a scarcity of medical men; but still, later on, letters began to come in from candidates for the Senate or House of our General Assembly, usually experienced legislators who had always been friends of the profession and mine, saying in substance that they were going to Frankfort pledged to procure relief for their constituents—''get more doctors for the country districts''—as they expressed it, but were anxious to act with and not in opposition to the profession, and requesting that we prepare bills for them to introduce which would best serve the interests of both the profession and people, with which request the writer attempted to comply as will appear hereafter. Some weeks before the General Assembly met one of the leading attorneys of the state, who had held some of the highest offices of his guild, which are strictly professional, wrote that, upon request, he had prepared a bill on this subject for a number of legislators, a copy of which, with the consent of his clients, of course, he kindly enclosed to me. This bill, to be well known later as House Bill 307, which in due course, and contested upon every point, was reported favorably, and, well along in the session, after full discussion, passed the House by a vote of 55 to 7; was reported favorably in the Senate, and would likely have passed there by about the same proportioned vote, had we not been able to get its sponsors from both houses together and convince them, as we had often tried to do before, that the bill, if passed, would not stand the tests of the courts, and could not possibly bring about the results they desired if it did, and urging them to give the profession the two years intervening before the next session of the General Assembly to devise some practical, workable plan which would give the relief they sought for their constituents without debauching the profession and bringing disaster upon the people by turning the state back to the quack-ridden conditions of fifty years ago. This bill, which came so near becoming a law, reads as follows:

House Bill No. 307

Wednesday, February 1, 1922.

AN ACT defining the qualifications for admission or matriculation to medical colleges in this State, and providing that certificates or diplomas issued to graduates of medical colleges in this State shall authorize such graduate to practice medicine in this Commonwealth without further examination, provided same is filed with the Secretary of the State Board of Health, and providing further, a penalty for violations of this Act.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE COMMONWEALTH OF KENTUCKY.

1. That any person holding a certificate to teach in the common schools of this State and who desires to pursue the study of medicine, shall be eligible to admission or matriculation in any of the medical colleges situated in this Commonwealth in which the science and are of medicine and surgery are taught.

No medical college in this State shall refuse to admit or matriculate any such applicant, upon payment of the required tuition and usual entrance fees.

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*A reply to an editorial of the Courier-Journal of August 29, assuming that conditions as to entrance and graduation requirements in Medical Schools were as faulty as in law schools, with equally bad results for the public, from one of the members-elect of the coming session of the General Assembly

No medical college in this Commonwealth, or the governing authority in charge thereof, shall require any further qualification for admittance or matriculation than that above set out.

2. After such applicant shall have been duly admitted or matriculated and satisfactorily completed the regular course of instruction by such medical college, and after such applicant shall have successfully passed the regular and required examination, he shall then be granted a certificate or diploma which shall authorize him to engage in the general practice of medicine without further examination in this Commonwealth, provided such applicant shall, within six months from date of receipt of said certificate or diploma, file same with the Secretary of the State Board of Health, whose duty it shall be to recognize the authority conferred by such certificate or diploma, and issue a license thereon to such applicant so filing same.

3. Any medical college in this Commonwealth, or the corporation, board or governing authority in charge of same, who shall violate any of the provisions of this Act shall be deemed guilty of a misdemeanor and shall, upon conviction thereof, be punished by a fine of not less than five hundred dollars ($500) nor more than one thousand dollars ($1,000) for each offense.

4. All laws or parts of laws in conflict herewith are hereby repealed.

In the light of forty-two years experience at Frankfort, and with information as to professional and public sentiment steadily coming in from widely separated sections, it was not difficult to get a vision of the adverse legislation likely to be proposed affecting us, and, still more, affecting the welfare of the people about things in regard to which they are so dependent upon us; and with far better prospects for the success of such adverse legislation than was at all comfortable, unless the profession could be aroused not only to wise but to such prompt action as would meet the emergency; and, after full consideration, it was made the duty of the writer to prepare a measure for this purpose. This selection probably grew out of the fact that, with only the unstinted confidence and moral support of the profession, and the public good-will secured the passage of every line of every medical and health law now upon our statute books, without the cost of so much as a copper cent to any physician in Kentucky, although at the expense of years of anxious toil, privation and criticisms from both the medical profession and people.

Any way, after two trips to Chicago myself, and one by my son, mainly to confer with Dr. Frank Billings, Chairman of the Board of Trustees of the American Medical Association, and his associates, his being recognized as one of the master-minds of this country on all of these matters, and, after weeks of solicitous thought and conferences with my colleagues, provisions were prepared intended to meet this need of the people of certain rural districts, and incorporated it as part of a long needed revision and codification of our original medical law, and the many amendments made to it in the thirty years of its existence; and, after submitting it to the Council of the State Medical Association and the State Board of Health, called in special joint session to consider and vote upon it; and, after it was unanimously approved by both of these organizations, had it introduced in both branches of the General Assembly. Going over it now, as he has just done in the light of his familiarity with the laws not only of this country but of the world—the writer can frankly say that it is at once the fairest, most practical and comprehensive measure of this kind ever presented to a law-making body in this or any other country. The bill is mainly a copy of existing laws and amendments, seattered through various chapters of the statutes and acts, with only such changes as were necessary to make it a complete, consecutive law, with the addition of two sections relating to this rural district problem. The provisions of the bill relating to supplying the rural districts with physicians where the need for them was urgent being about one-twentieth of this measure, the balance was practically the existing law, with only such verbal changes as would make it a consecutive, complete, modern statute with all of its effectiveness preserved, reads as follows:

"Sub-Section (c). Under-graduate credentials from a reputable college of any of the systems of practice provided for in this act, legally chartered under the laws of this State, or of some other state of this Union, showing that, upon the basis of a certificate from an accredited high school, or an examination equivalent thereto, before the students' examiner of the State Board of Health, that the applicant has been granted a conditioned entrance to such college, and had actually and diligently attended and taken three courses of lectures, of not less than nine months each, including special and extended practical study in the diagnosis, prevention and treatment of disease, qualifying him to become a general practitioner of the system of practice in which he was educated. If upon examination he is granted a limited certificate to practice for a term of five years, such certificate to be renewable at five year intervals, upon the basis of his efficiency and success as a practitioner, upon passing another examination, without fee, before the said board. At any time after he has actually spent not less than five years in reputable practice, at locations which said board has assisted hi mto find, such applicant shall be permitted to complete the balance of the college course, and become a candidate for graduation, upon removal of the conditions as to the entrance requirements by an examination before the said students' examiner.''

''Section 10. That the sum of ten thousand dollars for the fiscal year ending June 30, 1922, and the sum of twenty-five thousand dollars for the fiscal year ending June 30, 1923, or so much thereof for each of such years as said board may find necessary, be and the said sums respectively are hereby appropriated for use by said board in assisting properly qualified persons to acquire such an education as will fit them to become safe general practitioners in such locations as such board will assist them to find, and who will agree in writing to practice at such locations for a period of not less than five years. The state board of health shall account for all sums expended from these appropriations as required by law, and shall make a special itemized report, with duplicate vouchers, all approved by the State Inspector and Examiner, to the next General Assembly, giving the name and location, and the sums expended for each person assisted from this fund, such report and vouchers to be then filed with the Auditor of Public Accounts, as required under existing law.''

As will be seen, these very carefully considered and prepared sections contain no provision under which either the entrance or graduation requirements could be lowered one iota for any one receiving a full certificate to practice, or who is eligible for a voting membership in our society system, or to hold any medical office, or for reciprocity to any other state; but it does permit a young man who had taken three full courses in college, the last such a practical one that he could make a passing grade upon examination, and, before he thinks he has become too highly educated to practice in the country, locate in such district as he and the board may agree upon, with the occasional privilege of consultation or society association with older practitioners of whom no entrance requirements were exacted when they entered college, who graduated in two years, and secured a lifetime certificate to practice without examination upon payment of a fee of two dollars, as the writer did, upon the same plane with Brashear, McDowell, Dudley, Gross, the Yandells, and most of the heroic dead, as well as the men now practicing who are beyond middle life, in Kentucky or other states, few of whom could enter or graduate from a school which would now be recognized as in good standing.

As soon as the bill was printed copies were sent to every county society, with the request that meetings be called to consider and to advise the Council and Board about the emergency provisions last quoted, and this request was calmly, wisely and profitably complied with in most counties; but hysteria seemed to take possession of a few good societies, and of a few good men in others, and they reacted so promptly and explosively, without advising those responsible for the legislation as to their intentions, as to put the best interests of the profession in great jeopardy. For instance, two societies, most of whose worthy members seemed to be amply protected by the conditions under which they were so successfully practicing, vociferously insisted that their senators and representatives defeat everything pending or hereafter offered by the State Association or Board. One society with three members, with a quorum present, and with more illegal practitioners in the county than the society had in its membership, who could not be convicted because the people thought they needed their services, called a meeting and sent out resolutions to other societies asking assistance in the effort to defeat this bill, and of which they sent copies to members of the General Assembly to defeat the measure and anything else coming from the same source. And from the only physician in one county, covering a large territory, and he alleged to be a former drug addict, first wired, ''I am the only doctor in this county and no others are needed. See letter.'' He followed this by a long letter protesting against the movement in so far as it affected his county, and then, to remove all doubts, made a personal trip to the office—a distance of about two hunderd miles—the first twelve on horseback, to use his personal influence in warding off competition. All this may seem amusing to those not on the scene, or not interested in the meaning of it, but members of the General Assembly said their desks were literally flooded with letters from doctors, and were almost dumfounded, and your representatives on the ground were scarcely less perplexed and alarmed.

It has been said ''misfortunes never come singly,'' and it certainly proved true in this matter. In the legislative confusion inseparable from the defection of such a large, insistent and reputable element, opposition of various kinds, long dormant, mainly because hopeless, began to show its portentous hydra-heads. The chiropractors, restive under restrictions upon anything but truthful and honest advertising, to which our own and all other systems of practice are limited, introduced a sweeping bill having the purpose of turning them loose upon the public practically without examination or limitation upon their authority to make as full claims for what they cannot as for what they can do;

As all of these things had been made possible chiefly because of our failure to solve "the scarcity of doctors problem," and of mistakes and divisions in our own ranks, greatly exaggerated and misrepresented by our enemies, who, as already said, had combined and were acting in concert in everything, and had, with the mistakes already indicated, bred up such serious distrust of the profession in the minds of many members of the General Assembly, that an open, joint meeting was arranged between that body and the House of Delegates of the State Association, to be held at Lexington, with Drs. Billings and Colwell, the latter Secretary of the Council on Medical Education, both of Chicago, with authority to speak for the profession of the United States. The attendance was large and representative and the all-day frank, heart-to-heart discussion engendered a spirit of sympathetic interest and helpfulness with fair-minded, able legislators which continued to the end of the session, and contributed much to the final success secured with our more important measures, proceedings of which meeting appear in this issue of the Journal. The meeting resulted in the selection of a strong committee composed of Drs. David Barrow, chairman, and Julian Estill, both of Lexington; George A. Hendon, Louisville; J. B. Kinnaird, Lancaster; V. A. Stilley, Benton; O. F. Hume, Richmond; C. Z. Aud, Louisville, and M. M. Price, Salyersville, which was authorized to report a new bill, or amendment or substitute as might be deemed best. After ten days' study of the situation, the committee met at Lexington with the writer present by invitation, and, after mature deliberation, it unanimously reported the original medical bill, amended by a substitute for Sub-Section (c), Section 3 thereof, which reads as follows:

"(c) That there may be opportunity and encouragement for the development of more general practitioners—family physicians—to meet what seems to be an actual and widely felt need in this commonwealth, the state board of health is hereby authorized to make and enforce such rules and regulations, for such a period of time as it may be deemed will best serve the interests of both the people and profession, as will provide that with all certificates issued to recent medical graduates under this act it shall endeavor to influence the holders thereof to follow such general practice until the period named in such regulations passed, and until such of them as may desire to do so have taken such courses of study and passed such examinations as will show their qualifications to practice such specialties as, severally, they may have selected. The board shall have authority, and it is hereby made its duty, to use its influence, in the light of the information which may come to it from the systematic survey of medical and economic conditions in every section of the state, now in progress, to secure the voluntary transfer of competent and legally qualified general practitioners from locations where they may seem to constitute a surplus to other locations where there is an urgent demand for their services; in assisting properly qualified persons to acquire such a medical education as will fit them to become safe and legally qualified practitioners in such locations as the board may assist them to find, and where they will agree in writing to practice for not less than five years; and to assist some medical college or colleges within easy reach of our students in securing and maintaining such equipment and teaching force as may be necessary and helpful in carrying out the provisions of this act."

As a careful poll of both houses of the General Assembly had shown that the appropriations provided in Section 10 of the original bill would not pass, it was stricken out, as was officially done later in both houses. Believing, as the writer did and does, that the solution of this problem was to be found in the voluntary transfer of competent practitioners from locations in cities and towns where they seem to constitute a surplus to locations where there is an urgent demand for their services and where they would be better off, in doing which, with many of them, small loans would be a necessity, and for which this appropriation would have enabled the Board to arrange, this result was very discouraging.

Coupling this with the opinion of many good, loyal men scattered over the state who were not in close touch with the situation at Frankfort, and who could not appreciate the danger of losing all of the protective legislation obtained for ourselves and the people in the last fifty years, and doubted either the necessity for or wisdom of conceding anything to anybody—and especially after an understanding had been reached with the sponsors of House Bill 307 and all similar measures, giving the profession the two years intervening before the next meeting of the legislature in which to work out plans for relief for communities along the lines under discussion, and for other changes in our legislation in such a broad, liberal way as might lessen instead of increasing the discord to which we seem often to be so prone—it was thought best to withdraw the entire bill, and to establish a Forum in each issue of the Journal until the Paducah meeting, open to all members who confine themselves strictly to the merits of the question; and to suggest to the Council the advisability of arranging for a four instead of a three days' meeting this year, two forenoons of which shall be devoted, under the supervision of the House of Delegates, to every phase of the subject of medical education, including this demand of rural districts for a larger supply of general practitioners.

For their assiduous work at Frankfort, in season and out of season, for the entire session, and for what they secured, as well as for what they prevented, the profession owes a debt of gratitude to Dr. A. T. McCormack, Mr. J. F. Blackerby, Miss Marian Williamson, Dr. Lillian H. South, and scores of other friends in and outside of the General Assembly who voluntarily assisted them.

J. N. McCormack.

BOOK REVIEW

Neoplastic Diseases.—A treatise on Tumors. By James Ewing, M.D., Sc.D., Professor of Pathology at Cornell University Medical College, New York City, Second Edition, Revised and Enlarged. Octavo of 1,054 pages with 514 illustrations. Philadelphia and London. W. B. Saunders Company, 1922. Cloth, $12.00 net.

In writing this original work Dr. Ewing's chief aims were so to present symptoms and signs that cancer could be recognized in its incipiency, particularly by the man in general practice to whom such cases usually come first; to enable the physician to distinguish between benign and malignant growths; to determine upon the prognosis, and a possible course of treatment.

He has analyzed the numerous etiologic factors, emphasized the general dependence of clinical course upon histologic structure, traced the histogenesis to the last degree, and enumerated and contrasted the more striking clinical features. It is a work off the beaten path, decidedly clinical and discusses tumors as specific, clinical entities.

OFFICIAL ANNOUNCEMENTS

STATE INSPECTOR AND EXAMINER, HON. H. E. JAMES—HIS EXHAUSTIVE REPORT ABOUT THE STATE BOARD OF HEALTH.

Frankfort, Kentucky,
July 8, 1921.

Hon. Edwin P. Morrow,
Governor of Kentucky,
Frankfort, Kentucky.

Dear Sir: I beg leave to submit the following as my report upon an investigation of the accounts, affairs and conditions of the State Board of Health, located at Louisville, Kentucky. The checking of accounts was made by me in person and covers the period from July 1, 1919, to March 30, 1921.

H. E. James,
State Inspector andExaminer.

TRACHOMA FUND

RECEIPTS

1920	Appropriation from July 1, 1920 to June 30, 1921		$13,700.00

EXPENDITURES

1920	Dec. 3	Salary and expenses	$129.67	
1921	Jan. 31	Salary and expenses	279.94	
	Mar. 1	Salary and expenses	202.54	
	Mar. 29	Salary and expenses	446.37	$ 1,058.52
		Balance March 31, 1921		$12,641.48

HYGIENIC BOARD

RECEIPTS

1920	Appropriation from July 1, 1920 to June 30, 1921	$27,000.00
	Federal Government to March 1, 1921	14,892.66
		$41,892.66

1920	July 8	Pay Rolls, etc	$3,310.20	
	Aug. 4	Pay Rolls, etc	2,843.18	
	Sept. 2	Pay Rolls, etc	3,894.17	
	Oct. 6	Pay Rolls, etc.	3,524.35	
	Nov. 10	Pay Rolls, etc.	5,430.53	
	Dec. 3	Pay Rolls, etc.	4,802.35	
	Dec. 22	Pay Rollls, etc.	3,100.72	
1921	Jan. 31	Pay Rolls, etc.	2,879.86	
	Mar. 1	Pay Rolls, etc.	3,136.19	
	Mar. 29	Pay Rolls, etc.	3,731.13	$36,652.68
		Balance March 31, 1921, unexpended		$ 5,239.98

RECEIPTS

1919	Appropriation from July 1, 1919 to June 30, 1920	$25,756.97

EXPENDITURES

(From July 1, 1919 to June 30, 1920)

1919	July	Payroll and Supplies	$2,065.41	
	Aug.	Payroll and Supplies	1,617.48	
	Sept.	Payroll and Supplies	1561.30	
	Oct.	Payroll and Supplies	1,177.24	
	Nov.	Payroll and Supplies	1,062.82	
	Dec.	Payroll and Supplies	2,982.20	
	Dec.	Payroll and Supplies	5,639.09	
1920	Jan.			
	Feb.			
	Mar.			
	Apr.			
	May	Payroll and Supplies	3,519.31	
	June	Payroll and Supplies	2,242.77	
	June	Payroll and Supplies	200.00	
	June	Payroll and Supplies	3,788.08	$25,855.70
		Deficit June 30, 1920		$ 98.73

GENERAL FUND

Receipts and Expenditures From July 1, 1919 to June 30, 1920.

RECEIPTS

1919	Annual Appropriation	$75,000.00	
	Correct Error	11,288.08	
		$86,288.08	

EXPENDITURES

1919	July 10% Emergency	$ 1250.00	
	Aug. Payroll, etc	5,250.00	
	Sept. Payroll, etc	7,370.00	
	Oct. Payroll, etc.	6,000.00	
	Nov. Payroll, etc.	6,610.00	
	Dec. Payroll, etc.	4,640.00	
	Dec. Payroll, etc.	6,000.00	
1920	Jan.		
	Feb. Payroll, etc.	6,840.00	
	Mar. Payroll, etc.	1,500.00	
	Mar. Payroll, etc.	4,100.00	
	Apr. Payroll, etc.	4,100.00	
	Apr. Payroll, etc.	1,910.00	
	May Payroll, etc.	7,898.49	
	May Payroll, etc.	1,500.00	
	June Payroll, etc.	6,430.00	
	June Payroll, etc.	12,080.00	$85,479.08

Balance June 30,1920, unexpended...$ 809.00

GENERAL FUND

Receipts and Expenditures From July 1, 1920, to March 31, 1921.

RECEIPTS

1920	July Appropriation (Budget)	$76,300.00

EXPENDITURES

1920	Aug. Payrolls and Expenses.	$7,065.00	
	Sept. Payrolls and Expenses.	6,070.00	
	Oct. Payrolls and Expenses.	7,420.00	
	Nov. Payrolls and Expenses.	6,020.00	
	Dec. Payrolls and Expenses.	5,430.00	
	Dec. Payrolls and Expenses.	7,100.00	
1921	Jan. Payrolls and Expenses.	6,986.75	
	Mch. Payrolls and Expenses.	6,407.00	
	Mch. Payrolls and Expenses.	7,300.00	$59,798.75

Balance unexpended March 31, 1921.$16,501.25

SPECIAL FUND.

Receipts and Expenditures From July 1, 1919, to June 30, 1921.

RECEIPTS

1919	Appropriation	$10,000.00
	Correct Error	3,519.31
		$13.519.31

EXPENDITURES

1919	Dec. Payrolls, etc.	$2,828.06	
	Dec. Payroll, etc.	710.00	
1920	Feb. Payroll ,etc.	468.63	
	Feb. Payroll, etc.	1,824.13	
	Mch. Payroll, etc.	502.00	
	Mch. Payroll, etc.	1,695.18	
	Apr. Payroll, etc	658.27	
	May Payroll, etc	1,499.18	
	June Jayroll, etc	923.86	
	June Payroll, etc	530.50	$11,639.81

Balance unexpended June 30, 1920....$ 1,879.50

SPECIAL FUND

EXPERIMENT STATION

Receipts and Expenditures From July 1, 1920, to June 30, 1921.

RECEIPTS

1920	Appropriation	$18,000.00

EXPENDITURES

1920	August	$1,500.00	
	September	1,500.00	
	October	1,500.00	
	November	1,500.00	
	December	1,500.00	
	December	1,500.00	
	December	1,500.00	
1921	January	1,500.00	
	March	1,500.00	
	March	1,500.00	$13,500.00

Balance unexpended March 31, 1921....$4,500.00

PRACTICE ACT FUND

ACTS 1920.

Receipts and Expenditures From July 1, 1919, to March 30, 1921.

RECEIPTS

1920	Fees	$14,010.31

EXPENDITURES

1920	August expenses	$ 75.00	
	September expenses	459.50	
	October	161.64	
	November	495.06	
	December	163.01	
	December	455.00	
1921	January	2,179.86	
	March 1	338.00	
	March 10	8,500.00	
	March 23	600.00	
	March 29	125.00	$13,552.07

Balance unexpended March 31, 1921..$ 458.24

GENERAL FUND

GENERAL FUND. Distribution of Expenditure from July 1, 1919 to June 30. 1920.

SALARIES	POSTAGE	TRAVLING	RENT	TELEPHONE & TELEGRAFH	FURNITURE & EQUIP.	KY. EXP. STATION	RENEWALS & REPAIRS	EXPENDABLES & LAB.	LAUNDRY	FUEL, LIGHT & WATER	LIBRARY	MISCELLANEOUS	
$2889.36	$ 464.78	$ 539.67	$ 45.00	$ 99.71	$ 116.00	$ 1500.00	$ 617.77	$ 160.16	$	$ 42.55	$	$ 25.00	July
2577.56	527.85	542.84	45.00	53.44	150.00	1500.00	1374.00	299.78		262.68	11.85	25.00	Aug.
2845.92	225.59	749.35	20.00	68.57		1500.00	59.65	430.47		95.42	5.02		Sept.
3114.68	130.96	584.70	20.00	44.48			660.96	218.51	5.00	70.73	10.00	250.00	Oct.
3478.88	78.64	740.90	32.50	14.40	250.40	1500.00	1.85	405.55	5.00	66.84	65.04		Nov.
3293.20	218.22	276.40	20.00	204.77	124.25	1500.00	45.95	188.78		97.18	10.20	20.85	Dec.
3142.33	375.05	849.31	20.00	58.00	219.80	1500.00	44.52	284.48	5.00	123.76	46.50	175.25	Jan.
3180.11	138.84	334.08	20.00	98.90	40.00		52.47	134.75	5.00	37.45	36.55	21.85	Feb.
3069.00	12.75	350.35	20.00	108.44	46.00		15.00	187.30	5.00	66.53		219.58	Mar.
3206.50	132.50	694.45	20.00	112.64	377.37		292.75	443.75	5.00	157.15	15.00	572.91	Apr.
3142.00	348.67	792.49	32.50	119.63	25.47		55.53	175.85	5.00	61.36	175.50		May.
3305.12	89.01	879.26	20.00	6.46	4944.10	1500.00	450.20	641.56	5.00	23.60	37.60	318.50	June
$7244.64	$2740.86	$7333.81	$315.00	$989.44	$6293.39	$10500.00	$3670.63	$3571.14	$ 40.00	$1105.30	$409.26	$1626.94	Total

GENERAL FUND. Distribution of Expenditures from July 1, 1920 to March 31, 1921.

SALARY, ETC.	STATIONERY & PRINTING	POSTAGE	TRAVELING	RENT	TELEPHONE & TELEGRAPH	FURNIXURE & EQUIP.	RENEWALS & REPAIRS	EXPENDABLE & LAB.	LAUNDRY	FUEL & LIGHT	LIBRARY	COUNTY HEALTH BOARDS	MISCELLANEOUS	
$3858.22	$ 321.50	$ 152.43	$ 749.70	$ 32.50	$ 200.14	$140.50	$ 16.00	$ 428.58	$ 5.00	$158.12	$ 66.49	$1895.82	$ 40.00	July
4008.88		249.72	767.88	29.20	101.74	76.20	35.46	232.42	5.00	65.55	16.33		481.12	Aug.
4050.58	1.80	102.03	768.15	112.19	118.50		168.88	135.99	5.00	92.37	23.00	1812.50	29.01	Sept.
3754.28		425.73	962.74	55.00	156.66	26.75	25.10	464.88	5.00	99.67	34.52		9.67	Oct.
3882.58	2.00	14.70	634.72	56.70	107.45	24.00	98.68	396.71	5.00	106.99	14.90		85.57	Nov.
3984.42	9.00	98.94	299.48	55.00	144.45		2.670	342.25	6.50	202.80	63.49	1812.50		Dec.
3994.41	794.58	189.30	1004.94		126.26		24.00	335.47	5.00	94.63	50.14		361.27	Feb.
3968.13	462.81	438.41	653.63	55.00	123.21	112.25	63.00	311.14		99.99	80.81		31.62	Mar.
$31501.50	$1291.69	$1671.26	$5841.24	$395.59	$1078.41	$379.70	$457.82	$2647.44	$36.50	$920.12	$350.18	$5520.82	$1092.73	Total

RECAPITULATION OF ALL FUNDS.

RECEIPTS

General appropriation from July 1, 1919, to June 30, 1920......	$ 75,000.00
To correct error in disb. from July 1, to June 30, 1920..........	$ 11,288.08
General appropriation from July 1, 1920, to June 30, 1921......	76,300.00
Appro. Hygiene Board from July 1, 1919, to June 30, 1920......	25,756.97
Appro. Hygiene Board from July 1, 1920, to March 31, 1921.....	27,000.00
Fed. Gov. Hygiene Board from July 1, 1920, to March 31, 1921...	14,892.66
Appro. Special Fund, Acts 1918..	10,000.00
To correct error in dis. (Special Fund)	3,519.31
Appro. for Experiment Sta. July 1, 1920, to June 30, 1921....	18,000.00
Fees Practice Act from July 1, 1919	13,700.00
Appro. Trachoma from July 1, 1920, to March 31, 1921	14,010.31
	$289,467.33

DISBURSEMENTS.

General Fund from July 1, 1919, to June 30, 1920	$85,479.08	
General Fund from July 1, 1920, to March 31, 1921..........	59,798.75	
Hygiene Fund from July 1, 1919, to June 30, 1920...........	25,855.70	
Hygiene Fund from July 1, 1920, to March 31, 1921.........	36,652.68	
Special Fund from July 1, 1919, to June 30, 1920..........	11,639.81	
Exp. Sta. from July 1, 1920, to March 31, 1921............	13,500.00	
Practice Act from July 1, 1920, to March 31, 1921..........	13,552.07	
Tracnoma Fund from July 1, 1920, to March 31, 1921..........	1,058.52	$247,536.61
Balance in all funds March 31, 1921		$41,930.72

RECEIPTS AND DISBURSEMENTS

ROCKEFELLER FOUNDATION FUND.

1919	Balance brought forward..$	194.24	
July 1	International Health Board.		$1,375.00
July 10	Jno. L. Rice	50.82	
Aug. 1	Mason Co. Health League..		700.00
Aug. 1	Dr. J. S. Lock	133.33	
Aug. 1	Florence Wallingford......	80.00	
Aug. 1	John L. Rice...........	153.22	
Aug. 1	Florence Wallingford	85.00	
Aug. 1	John L. Rice	252.00	
Aug. 1	Florence Wallingford	85.00	
Aug. 1	John L. Rice	281.95	
Aug. 1	Florence Wallingford	85.00	
Aug. 1	Annie M. Casey	75.00	
Aug. 1	David Dickson	75.00	
Aug. 4	By transfer to Maysville Bk.		700.00
Aug. 6	State Bank, Maysville, Ky	870.00	
Aug. 23	Mason Co. Health League..		300.00
Sept. 9	State Bank Maysvilel, Ky.	300.00	
Sept. 9	By transfer to Maysville Bk.		300.00
Sept. 10	John L. Rice............	286.80	
Sept. 10	Annie M. Casey	101.50	
Sept. 10	Florence Wallingford	60.00	
Sept. 10	Leslie Mastin	53.23	
Sept. 11	Mason Co. Health League..		400.00
Sept. 18	International Health Board		825.00
Sept. 18	John L. Rice............	283.00	
Sept. 18	Annie M. Casey..........	102.00	
Sept. 18	Florence Wallingford	60.00	
Sept. 18	Leslie Mastin	75.00	
Sep.t 18	By transfer to Maysville Bk.		400.00
Sept. 18	State Bank Maysville......	400.00	
Nov. 29	Mason Co. Health League..		500.00
Nov. 29	John L. Rice	299.15	
Nov. 29	Annie M. Casey	106.00	
Nov. 29	Florence Wallingford	60.00	
Nov. 29	Leslie Mastin	75.00	
Dec. 1	John L. Rice............	283.05	
Dec. 1	Annie M. Casey	82.00	
Dec. 1	Florence Wallingford	60.00	
Dec. 1	Leslie Mastin	75.00	
Dec. 1	By transfer to Maysville Bk.		500.00
Dec. 1	State Bank Maysville	500.00	
Dec. 24	Mason Co. Health League..		600.00
Dec. 31	Dr. J. S. Lock...........	96.66	
Dec. 31	John L. Rice............	257.00	
Dec. 31	Annie M. Casey	119.70	
Dec. 31	Florence Wallingford	60.00	
Dec. 31	Leslie Mastin	75.00	
Dec. 31	By transfer to Maysville Bk.		554.59
Dec. 31	State Bank ,Maysville ...	554.59	
1920			
May 1	Johu L. Rice.............	279.82	
May 1	Annie M. Casey..........	25.00	
May 1	Leslie Mastin	75.00	
May 1	Florence Wallingford	60.00	
June 30	Florence Wallingford	39.43	
		$7,154.59	$7,154.59

RECEIPTS

1920			
Mar. 11	International H. Board..		$ 1,470.83
Apr. 18	International H. Board..		937.49
June 2	International H. Board..		2,600.00
June 21	International H. Board..		625.00
July 13	International H. Board..		625.00
Sept. 9	International H. Board..	...	3,850.00

DISBURSEMENTS

1921			
Jan. 31	International H. Board..		4,469.79
Mar 18	International H Board..		4,459.38
Apr. 18	State Board of Health...$	845.83	
Apr. 8	Daviess Co. Health Dept..	625.00	
May 15	Boy County Health Dept.	520.83	
May 15	Scott County Health Dept.	416.66	
June 16	State Board of Health...	725.00	
June 16	Daviess Co. Health Dept.	625.00	
June 16	Boyd County Health Dept.	625.00	
June 16	Scott County Health Dept.	625.00	
July 8	Harlan Co. Health Dept..	625.00	
July 26	Muhlenberg Co. H. Dept.	625.00	
Oct. 1	State Board of Health..	725.00	
Oct. 1	Daviess Co. Health Dept.	625.00	
Oct. 1	Boyd County Health Dept.	625.00	
Oct. 1	Scott County Health Dept.	625.00	
Oct. 1	Harlan Co. Health Dept..	625.00	
Oct. 1	Muhlenberg Co. H. Dept.	625.00	
1921			
Jan. 31	State Board of Health...	844.79	
Jan. 31	Mason Co. Health Dept...	500.00	
Jan. 31	Daviess Co. Health Dept.	625.00	
Jan. 31	Boyd County Health Dept.	625.00	
Jan. 31	Scott County Health Dept.	625.00	
Jan. 31	Harlan Co. Health Dept..	625.00	
Jan. 31	Muhlenberg Co. H. Dept.	625.00	
Mcb. 31	State Board of Health..	834.38	
Mch. 31	Mason Co. Health Dept...	500.00	
Mch. 31	Daviess Co. Health Dept.	625.00	
Mch. 31	Boyd County Health Dept.	625.00	
Mch. 31	Scott County Health Dept.	625.00	
Mch. 31	Harlan Co. Health Dept.	625.00	
Mch. 31	Muhlenberg Co. H. Dept.	625.00	
		$19,037.49	$19,037.49

COMMENTS.

APPROPRIATION AND EXPENDITURES FOR SALARIES AND TRAVELING.

In the period covered by this report (from July 1, 1919, to March 31, 1921—twenty-one months) the Board has spent for traveling expenses and salaries $81,919.00, of which $13,174.00 is for traveling and $68,745.00 for salaries.

The Board is performing a great service and accomplishing much good for the people of the State.

PURCHASE OF BUILDING.

The Examiner has made an investigation of the purchase of the building located at the corner of Sixth and Main streets (old Union National Bank Building), Louisville, Ky., for a permanent home for the State Board of Health, and is prepared to say that he approves and commends this very necessary purchase as a great bargain.

HOTELS, DRUG AND FOOD INSPECTION.

Under Section 2060b-12, Kentucky Statutes, authority is given the State Board of Health to examine and determine the purity of foods and drugs offered by manufacturers and dealers to the public.

Section 2060a-7 says that it shall be the duty of the State Board of Health to make or cause to be made examinations of foods, etc.

The Examiner sugggests that great care should be used and the very best results possible obtained along this line.

TRAVELING EXPENSES, ETC.

There is a liberality practiced in this department that is not practiced anywhere else relative to Pullman and chair car seats, taxicabs and "incidentals," which the Department has agreed to eliminate in the future.

BOOKKEEPING, OFFICE AND GENERAL EQUIPMENT.

Since the removal of the institution from Bowling Green to more commodious quarters in Louisville it has been necessary to spend considerable money for new equipment, supplies, appliances and betterments. All departments have been very well taken care of in the way of furniture furnishings and equipment except the bookkeeping department, the most important one the institution has, which seems to have been badly neglected. There should be installed in this department at once suitable desks to accommodate the numerous and unwieldly books. A modern filing system should be installed to take care of the many reports, expense bills, documents and papers that are very cumberous. These matters are now, necessarily, being handled without system or regulation. The bookkeeeping, so far as it goes, is being well and carefully done, but without a general ledger in which to centralize the various accounts it is impossible to determine the condition of any account without unlimited effort and delay. The Examiner must, therefore, earnestly insist that the ledger be installed at the beginning of the new fiscal year, July 1st next. I want to call attention to the inadequate quarters where the books and records are now being kept. Space is being used for many less important purposes which should be turned over at once to accommodate and make certain of proper and efficient care and keeping of the large volume of records and accounts that are growing and will continue to grow very rapidly.

Every penny that is received or paid out must be entered on the general books. Departments must make out the proper vouchers and pass them to the accounting department before funds can be withdrawn. Miss Landrum and Miss Taylor deserve praise and commendation for the careful and efficient manner in which they conduct their departments.

PAYROLL, MARCH, 1921, GENERAL FUND.

Dr. A. T. McCormack, Secretary	$100.00
Maude E. Hunter, Stenographer	125.00
Edith Landrum, Bookkeeper	75.00
Ann Neat Johnson, Stenographer	20.00
Mrs. Louise Redmon, Clerk	40.00
Dr. L. H. South, Director Bacteriology	200.00
Nell Peterson, Assistant Bacteriology	125.00
Ella M. Benentt, Clerk	75.00
Mary Bishop, Janitress	20.00
Leslie Black, Janitor	60.00
J. F. Blackerby, State Registrar	200.00
Nettie Ferguson, Stenographer	100.00
Rebecca Runner, Statistician	100.00
Lucile Dean, Clerk	65.00
Louise Spurrier, Bookkeeper	65.00
Louise Sewell, Card Clerk	65.00
Mrs. Alice Wilson, Certified Copy Clerk	50.00
Kathryn Gambert, File Clerk	50.00
Louise Vaughan, Clerk	40.00
Gertrude Hiner, Certified Copy Clerk	50.00
Dr. J. N. McCormack, Director Sanitation	200.00
Mary Atkins, Stenographer	125.00
Sarah H. Vance, Director Pure Food and Drugs	200.00
E. B. Weitzel, Inspector	200.00
C. S. Porter, Inspector	150.00
Loretta Williams, Stenographer	75.00
F. C. Dugan, Director Sanitary Engineering	200.00
Alberta Gerber, Stenographer	60.00
Mrs. Lillian Maddox, Instructor	120.00
Henrietta Guyn, Stenographer	75.00
A. J. Brewer	50.00
Louise Taylor, Assistant Bookkeeper	60.00
Dr. J. S. Lock, Director Tuberculosis Bureau, one-half salary	150.00
Jessie O. Yancey, Director, one-half salary	104.17
Alexine Robertson, Stenographer, one-half salary	40.00
Marian Williamson, Instructor, one-fourth salary	50.00
Dr. P. E. Blackerby, Director County Health Work, one-half salary	166.66
Mrs. C. H. Thompson, Stenographer, one-half salary	60.00

PAYROLL JUNE, 1919.

Dr. A. T. McCormack, Secretary	$100.00
Mayme Sullivan, Chief Clerk	125.00
Edith Landrum, Bookkeeper	25.00
Ann Neat Johnson, Stenographer	20.00
Mrs. Lucie Prewitt, Stenographer	100.00
Ella Bowman, Janitress	32.00
Dr. L. H. South, Director Bacteriology	200.00
Nell Peterson, Assistant Director Bacteriology	100.00
George Everhardt, Clerk	40.00
Mary Bishop, Janitress	20.00
Mary Underwood, Clerk	40.00
Dr. J. N. McCormack, Director Sanitation	200.00
Margaret Roemer, Stenographer	100.00
Dr. J. I. Whittenberg, Inspector Sanitation	200.00
Dr. P. E. Blackerby, Director Vital Statistics	200.00
Nettie Ferguson, Stenographer	65.00
Grace Fox Phillips, Certificate Clerk	75.00
Bertha Lanrum	75.00
Hallie Franklin, Bookkeeper	75.00
Rebecca Runner, Bookkeeper	60.00
Mrs. A. B. Hauser, File Clerk	45.00
Viola Stiffe, Card Clerk	35.00
Otha Haskins, Janitor and Supply Clerk	48.00
E. B. Weitzel, Inspector	200.00
Stella Hullett, Clerk	35.00
John W. McFarlin, Inspector	166.66
C. S. Porter, Inspector	150.00
Dr. J. G. Furnish, Director Pure Food and Drugs	200.00

PRACTICE ACT PAYROLL, MARCH, 1921.

Mayme Sullivan, Chief Clerk	125.00
Henry Martin, Janitor	68.00
Otho Haskins, Supply Clerk	80.00
Edna Burge, Telephone Operator	40.00
Ruth Thomas, Operator	35.00
Mary Mosby, Jantress	36.00
Ada Woolfolk, Janitress	36.00

HYGIENE FUND PAYROLL, MARCH, 1921.

Dr. Jathra Hancock, Director	200.00
Dr. J. I. Whittenberg, Lecturer	200.00
Margaret Flynn, Stenographer	125.00
Ruth C. Kuhns, Bacteriologist	125.00
Lee Vogel, Fellow-up Worker	100.00
Eula Robinson, Follow-up Worker	100.00
N. J. Hayes, Follow-up Worker	100.00
Dr. J. M. Hubbard, Conducting Clinic	116.67
Dr. J. L. Dismukes, Conducting Clinic	50.00
Dr. D. J. Travis, Conducting Clinic	25.00
Dr. M. Y. Marshall, Conducting Clinic	50.00
Dr. A. F. Finley, Conducting Clinic	50.00
Dr. Randolph Dade, Conducting Clinic	50.00
Dr. J. S. Martin, Conducting Clinic	50.00
Dr. S. P. Parks, Conducting Clinic	25.00
Dr. F. A. Stine, Conducting Clinic	100.00
Dr. J. M. O'Maley, Conducting Clinic	100.00
Dr. E. C. Roemele, Conducting Clinic	50.00

Dr. M. S. Davis, Conducting Clinic	62.50
Dr. I. H. Brown, Conducting Clinic	50.00
Dr. M. D. Flanary, Conducting Clinic	50.00
Dr C. K. Brosheer, Conducting Clinic	50.00
Dr. E. L. Harmon, Conducting Clinic	50.00

TRACHOMA PAYROLL.

Dr. C. B. Kobert, Director, per year whe non duty	$3,000.00
Robbie Belle Cochran, nurse, per month	50.00
Mrs. Nettie Snedaker, nures, per month	50.00
Mildred Killian, Bacteriologist, per month	100.00

The State Board of Health is composed of the following named persons:

Dr. John G. South—President, Frankfort, Ky.

Dr. A. T. McCormack—Secretary, Louisville, Ky.

Dr. W. W. Richmond—Clinton, Ky.

Dr. George T. Fuller—Mayfield, Ky.

Dr. H. H. Carter—Shelbyville, Ky.

Dr. F. A. Stine—Newport, Ky.

Dr. J. E. Wells—Cynthiana, Ky.

Dr. George S. Coon—Louisville, Ky.

BUREAU HEADS.

Dr. J. N. McCormack, Sanitation.

Dr. P. E. Blackerby—Vital Statistics.

Dr. Lillian South—Bacteriology.

Miss Sarah H. Vance—Pure Food and Drugs.

Dr. Milton Board—Venereal Diseases.

Mrs. Jane T. Dahlman—Public Health Education.

Miss Marian Williamson—Supervisor of Nurses.

P. W. Covington—County Health Work.

PRINTING AND BINDING.

From January 5 to June 30, 1920(six months) the Board paid to the State Journal for printing and binding the following sums:

Jan. 5	Warrant No. D. 5003	$ 229.06
Feb. 5	Warrant No. D. 5015	1,227.73
Mar. 9	Warrant No. D. 6154	150.42
Apr. 7	Warrant No. D. 6812	826.71
May 12	Warrant No. D. 7926	4,478.96
June 4	Warrant No. D. 8412	3,693.42
June 30	Warrant No. D. 9164	5,000.00
June 30	Warrant No. D. 9165	5,000.00
June 30	Warrant No. D. 9166	5,000.00
June 30	Warrant No. D. 9167	5,000.00
June 30	Warrant No. D. 9168	2,017.20
		$32,623.50

During this biennial period the State Board of Health has been able to accomplish more results in the improvement of public health than in any previous ten years of its existence. This has been due to several causes. For forty years this Board has been quietly and persistently bringing the importance of improving public and personal health conditions before the people of the state, and this, emphasized by the physical deficiencies in our young manhood revealed during the draft period of the late war, have focused public opinion on this important subject. For many years the State Federation of Women's Clubs and the Kentucky Tuberculosis Association has been rousing public sentiment along these lines, and the peace time program of the American Red Cross had put behind the health authorities a large number of enthusiastic health workers who had obtained more or less training during their war-time activities. The records indicate that our State Health Department has secured the co-operation of all agencies interested in public health and welfare in the state to a degree not attained in any other state and at the smallest per capita cost of any state in the Union which is doing effective work.

Outstanding events of the period are: The development of All-Time Health Departments as models in every section of the State; the Development of Venereal Clinics; the Establishment of a School of Public Health in connection with the University of Louisville; the Recognition by the State of its Responsibility in the Relief of Trachoma; and the Organization of a State Bureau for the Eradication of this Disease; the initiation of a Course in Physical Education for the Common Schools and the adoption of cooperative policies with the State Department of Education and other State Departments for the improvement of health conditions and the Purchase of a Modern Office Building in Louisville as a Home for all the activities of the State Board of Health.

All-Time County Health Departments. Naturally the objective of the State Health Department is to reach all the people in their homes with information that will enable them to improve living conditions and avoid the development of disease. The State Board of Health realizes that however effectually it functions from Louisville, it cannot reach the citizenship of the counties except through local organization. A large portion of its funds have been expended this year in the development of Model County Health Departments strategically scattered through the State so as to educate all the people, especially Fiscal Courts and other administratives as to the value of extensive health work. All-Time Health Departments, competent health officers, two or more trained public health nurses, at least one sanitary inspector and a clerk have been established in Boyd, Mason, Harlan, Scott, Muhlenberg, Jefferson, Daviess and Fulton Counties. In each of these counties there has been appropriated from State and local funds at least $10,000, and this fund has been augmented by personnel contributed by local Red Cross Chapters and Health and Welfare Leagues in almost every county. It is gratifying to report that at the end of the first year of the operation of these departments every one of the counties named renewed the appropriation for another year because the work had been so satisfactory. In all of them it was conclusively demonstrated that the departments of ill health heretofore conducted had not only been far more expensive, but had caused an entirely unnecessary amount of sickness, suffering, sorrow and premature deaths. It was especially gratifying that the renewed appropriation was made at a period of financial depression when the fiscal authorities felt they should do everything possible to save public funds. The All-Time Health Departments in these counties are cordially commended both for their efficiency and their economical management by their officials, and people of other counties are advised to study them with a view to their universal adoption throughout the State.

In the eight counties having All-Time Health Departments, the State is contributing $9,527.08 annually towards their maintenance.

Venereal Clinics. In cooperation with the State Board of Charities and Correction, studies have been made of the end results of venereal diseases in our penitentiaries and asylums. Three-fourths of the inmates of the State Penitentiary were found to be afflicted with syphilis, and one-third of the unfortunates of our asylums were found similarily affected. All of the young women in the State School of Reform had this loathsome disease. During the year, thirty venereal clinics for the detection and treatment of venereally infected persons not otherwise able to secure such treatment, were established.

During the biennial period, 25,582 cases of syphilis have been detected, and 16,538 of these cases have been treated as indigent cases in the clinics. Fifteen thousand treatments for syphilis have been issued free of charge to institutions, and 1699 treatments have been sold to institutions at cost. The physicians of the State have secured through the Board 3165 treatments at cost, 9,068 positive Wassermanns have been done at the State Laboratory, and 3293 smears have been examined in the laboratory. More than 1,000 persons infected with this loathsome disease have been placed in quarantine.428 lectures have been given by the director and his assistant, and more than 100,000 pamphlets have been distributed. For each dollar expended in this work, the Federal Government has added a dollar, and to the combined State and Federal fund, cities, counties and voluntary organizations have contributed practically enough to again double the entire amount. The results of this work on the future of the State are incalculable. Thousands of young people ignorant of the ravages of immorality and disease have been given fundamental education in sex hygiene which will help them to lead clean lives. Crime and insanity will be immeasurably lessened by this campaign, and public and private monies expended in its prosecution have been well invested.

School of Public Health. As the demand for a largely increased All-Time personnel for State and local health departments developed, it became evident to those most interested in this work that it was essential to establish an institution where intensive training could be given in preventive medicine. Physicians and nurses have been educated for the treatment of those already sick, and as important as is their work it is evident that certain of them must be given post graduate instruction so that they may become effective health officers and public health nurses who will prevent unnecessary sickness and premature death. Through the generous cooperation of the trustees of the University of Louisville and the American Red Cross, a School of Public Health was added to the University where adequate training might be given to specially qualified physicians and nurses who desired to devote their lives to the prevention and improvement of public health. In the two years, more than fifty individual pupils have taken the course in this school. It has been maintained in accordance with the highest standards. The graduates are already making good in the great humane work for which they have been properly trained. Up to the present time it has been maintained practically without expense to the State. The American Red Cross has secured and has paid the salary of the director, and the faculty of 52 members has been recruited from the leading medical and social service educators of the State. It is of marked interest that in the two years there have been less than four lectures which have not been delivered at the schedule time by these splendid men and women who have served without salary.

Trachoma. For ten years Kentucky has known that trachoma, a serious, contagious disease of the eyes, has been increasingly prevalent in almost every section of the State. This condition was originally discovered by the joint activities of Dr. J. A. Stucky and Miss Linda Neville, of Lexington, working together with the local physicians of Knott County. Recognized immediately as a national menace, the United States Public Health Service detailed Dr. John McMullen to make an investigation and study of the disease, its cure and prevention. Dr. McMullen spent several years on horseback and afoot going from school to school and from house to house in the remote mountain and county districts of the State, and found thousands of our people, young and old, suffering from the blight of this disease.

For the past eight years the Federal Government has been expending between $30,000 and $40,000 a year in demonstrating methods of its relief. The last General Assembly made an annual appropriation for two years of $13,700 in order that this work might be continued in Kentucky.

There has been no greater achievement in preventive medicine in the history of the world than Dr. McMullen's discovery and demonstration of an efficient method for the treatment of trachoma.

Physical Education Law. After all is said and done, the most important work of health departments is to get information of better methods of living to all of the people so that they understand and practice them. The passage of the Physical Education Law by the last General Assembly which provides for cooperation between the State Departments of Health and Education, in teaching physical education in every school in the State every day in the year, is considered by the health authorities to be the most valuable step which has been taken in the prevention of disease. The Manual of Physical Education for the Common Schools, prepared jointly by these two departments and put into the hands of every school teacher in Kentucky, means that the rising generation will come into adult life with a knowledge of the value of good health, with a consciousness of what good health means, and with the development of the sort of health conscience that will make it natural and easy for them to carry out in their daily lives the best things which science has taught them to regard to the prevention of disease.

I desire to especially commend Mr. John W. Carr, who has acted as laison officer between the Departments of Health and Education, and who has received wholehearted support of every educator and health official in the State. I am informed that in no other state has the cooperation between these two departments been so effectually consummated. While this work is just it is beginning, its possiblities should be recognized, and its opportunities extended by every citizen of Kentucky.

Medical Registration. In many States, registration of those who treat disease by different methods has been left to multiple boards of examiners which they have selected from one particular school or cult, and have been conducted rather as trades union examining boards. Our legislators, since the beginning of medical registration have recognized that the treatment of disease is part, and one of the very basic parts, of the protection of public health. From time to time since 1863 when the first Medical Practice Act was passed, upon the recommendation of successive government, the standards for those professing to treat the sick or afflicted have been raised, and the State Board of Health has been charged with the responsibility of the examination and licensing of all those who treat disease. The last General Assembly wisely provided that the Board should examine and register not only those who treat disease conditions generally as physicians do, but also provided for the registration of all existing cults of special schools of the healing art, and for those professing to treat only parts of the body, e. g., those fitting glasses or relieving defects by the application of mechanical appliances, and the drugless schools of treatment. In no other State has the basic principles been so well recognized that only those should treat the sick who have qualified in the fundamental knowledge of the workings of the organs of the human body both in health and disease. Our laws well provide that those who have this fundamental knowledge can use all or any of the systems of practice in which they have been trained in the relief of disease, and that those who have not acquired such knowledge cannot treat sick people at all. Kentucky is the only state which is free of advertising, traveling quacks. It has attained this result, not only through the excellent operation of the law, but through the splendid cooperation of the great body of physicians of the State who have been assisted in these later years by those interested in the development as professions of what were originally considered cults in medicine.

Purchase of New Home. For many years the State Board of Health has needed a plant from which it could operate its various activities. For the first forty years of its existence, the State appropriation was so small that it had to be housed at the personal expense of its executive officer in his own residence. For the next ten years, it occupied a floor in the Administration Building of the Western Kentucky Normal School. Due to its increased activities, it has outgrown what was considered in 1910 splendid office equipment. Two years ago, upon the establishment of the School of Public Health, the University of Louisville provided it with a building in Louisville which has been refitted, remodeled and is probably the most adequate office building occupied by a State Health Department in the United States. Recently the owners of this building found it necessary to dispose of it, and it was about to be occupied by commercial interests. Through the generosity of the University of Louisville, the members of the State Board of Health and other patriotic citizens, arrangements were completed by which the property was purchased in the name of the Commonwealth for the State Board of Health at the very reasonable price of $33,100 of which $18,100 was raised and paid in cash without the use of any State funds. This property is easily worth $60,000, it would cost much more than that to reproduce it, and the good business sense displayed in its purchase, instead of continuing to rent it at a rental of $5,200 a year is to be commended.

The building is being maintained economically, and carefully operated, and will for a number of years provide ample room for all departments of the Board.

Public Health Nursing. The State Board of Health has administered through its Bureau of Public Health Nursing the $10,000 State Aid Fund for County Health Nurses. This fund has been so wisely administered that it has induced the cities, counties and voluntary agencies, acting under the general supervision of the National Tuberculosis Association and The American Red Cross to expend more than $100,000 annually in the employment of All-time, highly trained public health nurses. The success of this work has been largely due to the untiring energy and diplomatic perseverence of its Director, Miss Marian Williamson. She has secured and deserved the respect and confidence of the officials of Kentucky.

Sanitary Engineer. For the first year after the war the United States Public Health Service provided the Board with a sanitary engineer. Due to the failure of the General Assembly to make an appropriation for cooperation in this work, this officer was withdrawn, but the Bureau of Sanitary Engineering has been developed, and Mr. F. C. Dugan, a graduate of our State University, and an experienced engineer in the construction and operation of sewerage and water plants, has done most effective work. This Bureau in November, 1920, completed the equipment of a laboratory in its office in Louisville, and has examined more than 600 samples from public water supplies to determine the character of the water supply and the efficiency of treatment. Every public water supply plants in the state are being completed and filed. In cooperation with the United States Public Health Service surveys and investigations are being made with the purpose of surveying water used by inter-state carriers. The law requires that all plans for the installation of water plants shall be approved by the State Board of Health before their installation. Many such plants have been studied and approved, frequently with much saving in both money and efficiency for the community effected. Many of the public water supplies, and most of the sewage systems in the state need great improvement, and the Board is now equipped and ready to assist in this work.

Bureau of Food. Especially effective dairy inspection work has been carried out in Campbell County where the State Board of Health made appropriation to assist at the beginning, and it has been found so effective that an appropriation has been continued by the Campbell County Fiscal Court. Dr. C. W. Shaw, Health Officer of Campbell County, is to be especially commended for this work. Many investigations of the misbranding of proprietary remedies have been made by this Bureau, and a large number of specimens have been and are being examined. An improvement is to be noted in the character of this labeling.

Tuberculosis Work. The Kentucky Tuberculosis Association cooperates very closely with the Bureau of Tuberculosis of the State Board of Health. The Secretary of this Association was made Director of the Bureau. Twenty-two tuberculosis dispensaries are in operation in the State. Particularly effective work has been done in the Modern Health Crusade movement in the public schools.

State Laboratory. Dr. Lillian South has continued the very effective work of the State Laboratory. During the last fiscal year 22,437 specimens for various diseases were examined. It is interesting to note that had these examinations been made by private laboratories at the ordinary charges, they would have cost more than twice as much as the entire appropriation made by the State for all health purposes. A most gratifying increase in the number of specimens examined for diphtheria is especially to be noticed, the death rate from this disease in Kentucky has been very high, but its rapid decrease in the last two years is due to the continued work of the physicians and health officials of the State. Forty-one patients were treated in the State laboratory for the prevention of rabies in individuals who had been bitten by rabid animals. One hundred and thirty-three treatments were sent to doctors for administration to patients at their homes. Most valuable research work has been done in cooperation with Dr. Geo. H. Heymann and Dr. Leon K. Baldauf, as to the causation of trench mouth or Vincent's angina. A successful vaccine has been developed and nine patients treated successfully for this very serious disease. Five hundred and thirty-six hours of instruction were given to nurses and health officers in laboratory technique. Vaccines for influenza, typhoid and whooping cough are made in the laboratory in large quantities, and distributed free to the physicians in the State. Twelve thousand five hundred and forty-six packages of biological products have been purchased at wholesale and distributed to physicians without additional cost. The water supply of 59 cities and towns are being systematically examined in the laboratory and suggestions made for their improvement through the State Sanitary Engineer.

Bureau of Vital Statistics—During the period from July 1, 1919 to the present time, the department has been actively engaged in maintaining and improving the organization of eighteen hundred local registrars throughout the state, the general supervision of birth and death registration and the compilation of such statistical data as is necessary to or requested by the other departments of the State Board of Health, and by the varions County Health and Public Welfare organizations.

Annual statistical reports are published and widely distributed throughout the state, that the people through a comparative study of these may become acquainted with the results of existing health conditions. The data in the 1919 and 1920 reports, when compared with that of previous years, show that the health activities in the state have accomplished much, as evidenced by the reduction in mortalities from the larger number of preventable diseases.

The department, besides collecting, arranging and binding the birth and death certificates from which all vital statistics are compiled, furnishes transcripts of all these certificates to the U. S. Census Bureau at Washington. As a result of having been in the registration area since 1912, the State Board of Health is furnished with the annual statistical reports of the Census Bureau. These are bound volumes containing a comprehensive study and classification of the birth and death rates of Kentucky along with those of other states in the registration area. These are also furnished to the various state educational institutions. In order to qualify for admission to the registration area of the U. S. Census Bureau it is necessary to show to representatives of the Bureau conclusive evidence that over 90% of the births and deaths occuring in the state are being reported for registration.

This work in most of the other states is done at the expense of the state at a cost of about $30.000 annually for those having the same birth and death rate as Kentucky. The Bureau is to be commended for the economy in having this work done efficiently, without additional expense, in Washington.

The work of editing and publishing a directory of all births and deaths that occurred in the state from 1911 to 1915 inclusive was completed in 1920. This directory comprises nine volumes of over 7,500 pages and contains an alphabetical list of 300,000 births and deaths, with county, date and original certificate number. Every county court in the state receives a copy of this directory, and the county officials in all instances are very appreciative of their great value for personal and legal reference. The directory covering the five year period, 1916 to 1920 inclusive, is now in process of publication, and it is hoped to have same completed early in 1922.

As the registration of births and deaths becomes more and more complete and each year adds to the records, the value and importance of the bureau is more appreciated by the public as evidenced by the fast increasing demand for certified copies of certificates for personal, social and legal use.

In two years' time the number of copies furnished monthly has increased from 75 to nearly 200, while there are great numbers of requests that cannot be met because the birth or death occurred prior to the enactment of the Vital Statistics Law in 1910 and no records are available.

Owing to the scarcity of licensed undertakers in the mountain sections of the state, the work of securing complete death registration is very difficult, and requires a great deal of correspondence and follow-up work, and the department should really have an inspector whose entire time would be devoted to field work in stimulating the work of the local registrar and securing evidence and prosecuting violations. In this connection I will say that this department has had wonderful co-operation from the other bureau directors and the Sanitary Inspectors of the State Board of Health in securing evidence of violations, and also in the distribution of the directories to the county courts. This work can best be done by a personal representative, as the value and importance of these records can then be impressed upon the officials and through them upon the people in general. Representatives of other State Health Departments have often remarked of the way in which the work of the several bureaus of the Kentucky State Board of Health is correlated, and of what fine cooperation exists between their personnel.

During the year complete co-operation has existed between the State Board of Health and other State departments. A survey of the food handling establishments of the state institutions and other sanitary arrangements were made at the request of the State Board of Control, and the inmates of the penitentiaries and asylums have been examined for venereal diseases. Those affected with these diseases have been treated and are in process of cure. This work has been done economically and effectively.

The work of the Board has been managed efficiently and economically. Its members, who receive no salaries, and its officers and employees who receive smaller salaries than those paid in any other state have performed a patriotic service for which they deserve the gratitude of the people of Kentucky.

Respectfully submitted,

(Signed) H. E. James,
State Inspector and Examiner.

JOINT MEETING OF LEGISLATORS AND THE HOUSE OF DELEGATES OF THE STATE MEDICAL ASSOCIATION.

Meeting of the House of Delegates of the State Medical Association with the Legislative Committee and Committees on Public Health, Kentucky Statutes and Appropriations and various other Senators and Representatives of the General Assembly of Kentucky at the Lafayette Hotel, Lexington, Ky., January 21, 1922.

The meeting was opened by the President of the Kentucky State Medical Association, Dr. J. A. Stucky, who said:

"Gentlemen, the object of our meeting today is a most important one. There is a crisis in medical affairs in Kentucky, and I want to express my appreciation and gratitude that so large an audience is present to consider this, one of the greatest problems that we have had to confront the medical profession and the people in Kentucky. The Secretary will now give us the reasons why this meeting has been called.

A. T. McCormack: "On behalf of the Council I move that the expenses of the House of Delegates and also the expenses of the legislative committees or what members of the legislative committee are here be paid by the Association. I make that as a motion on behalf of the Council."

The motion was seconded and unanimously carried.

The Secretary: "Mr. President, gentlemen of the society,there is on the way here from Frankfort a special car bringing the committees from the House and Senate on public health, and many members from both those bodies whom we have invited to participate with us in this discussion. Before they come I just want to say a few words: We are in the position this morning of witnesses befor a jury, the jurors being those gentlemen whom we have elected to represent us in the Senate and House. After many years of legislative experience in Frankfort I desire to say in this body, and to congratulate ourselves because it is their recognition of our purposes that has made possible that those legislators come to us with confidence in the medical profession and a feeling of regard for it, and a desire to do what the profession wants done, that I have never before seen in a General Assembly in Kentucky. We stand better as a profession and as an organization than we ever have, and all they ask us to do is to remember that our objective and theirs is the care of the health and lives of the people of Kentucky, that wherever there is sickness there our mission is, and wherever there is a cause for illness or a defect that needs remedying, it is the purpose and objective of the medical profession of Kentucky to reach that cause or that case of sickness and to give to it all the relief that is within our power. As you know, we have discussed this matter in our House of Delegates for the past three sessions. It has been discussed very fully and that discussion has been participated in by all those who desired to take part in it. At the last session it was especially fully discussed, and at the recent meeting of the officers of state societies in Chicago the matter was gone into in considerable detail and the discussion participated in by the officers of the American Medical Association and the representatives of many states. I have had the privilege as your representative recently—because all the privileges I have are as your representative—I would have had no invitation to speak before societies or legislatures or anywhere else except that you have honored me and given them the feeling that the words I say are somewhat worth while because you have charged me with the responsibility of talking on this question in such widely separated states as Vermont and Texas, and Kansas and Virginia, and the problem that we are called to consider is not our problem only, but is that of every state in the Union. In some sections of Kentucky it is more directly and distinctly our problem, but in practically every state it is a problem. I am sure you would be interested in knowing that in the great state of New York the Health Commissioner, Dr. Herman Biggs, reports that in one of their great counties within 100 miles of New York City, with macadamized roads through every section of the county, where there were formerly sixteen doctors there are now eight; that Dr. Williams, of Virginia, from a recent survey, carefully and accurately made by their physicians, states there are now 500 places in Virginia in which doctors have been located during the last hundred years, one or more, practically continuously, which are now vacant. The same thing applies to Vermont and parts of Massachusetts. And yet I realize the difficulty of approaching this matter on the part of many of us to whom it has not come as a personal problem at all. You take in the city of Louisville, we have probably 250 or 300 more men than we need, or than are making a living and making good in the profession there, and that same thing applies in the cities fairly generally. In a county like Harlan, where ten years ago there were three doctors there are now forty-two, all of them not only making an excellent income and doing as fine work as is being done by members of our profession anywhere, but when they need another doctor his compensation is immediately assured and they get him, and it is difficult for them to realize the necessity for providing doctors for the distinctly rural sections of which Harlan would have been an example had not its mineral resources opened up and its industrial facilities developed. In just a few moments the members of the legislature will be here, and when they come I would like to have the privilege of setting before them and you the joint problem that we have, so we can together work it. But what I want you to especially bear in mind is that these gentlemen who are our representatives in the legislature are just as square, just as honest, and just as interested in solving this problem right, according to the laws and the interests of their people, as we are, and we want to take it up with them with the idea of converting them to our view in the matter.

I want to state to the body—I have no plan—I am your representative; I desire and intend to carry out the instructions of this organization, but together let us work out a practical plan that will provide for the people of the poorer and distinctly rural sections of the state the kind of help that they think they must have.

Perhaps we could persuade the legislature to let us go negligently along and permit many men to spring up again as we had them in 1904 when 1,300 of them were put out of business because of ignorance. We can have that kind of thing happen again in our country districts, but it is a poor way and would reflect seriously on our profession.

I am particularly happy that Dr. Billings, an honorary member of this association, one of the most distinguished medical men in America, is present with us, and that Dr. Colwell, Secretary of the Council on Medical Education of the A. M. A., also is here, because these gentlemen realize the importance of this problem; and naturally our first feeling, that of every doctor, I am sure, is that we would very greatly have preferred to have this problem solved by the great representative we had chosen from all the states, from the Council of our organization officials, and I had hoped myself that it would be solved. But I am very much in the attitude of the fellow yho had been watching a "bile" that he hoped would scatter, but all of a sudden it has "riz." But we are not going to be given the privilege of waiting for the advice of our sister states. The problem is what are we going to do with the "bile" which is now in a state of eruption so far as Kentucky is concerned.

I find that some thirty-five members of the legislature in making their campaign their chief platform was that while in the legislature they would do something to supply their people with physicians they do not have. One of the members of the Senate told a few days ago to a group of senators about seeing a woman die without medical attention, within nine miles of the county seat, where there were four doctors, all too busy to get to her. They had investigated the matter and they *were* so busy they could not get to her. It was an actual fact. And that in a county which had eighteen doctors a few years ago, and now has six, a woman died miserably after five days of labor without assistance or care except that of kindly neighbors—those are the kind of stories told to the legislature, told to laymen, told to doctors, that arouses interest and feeling that something must be done to provide the suffering people of this state with the kind of relief that our profession alone knows how to give them. I listened the other day to one of the members of the House—down in Garrard County, one of the best counties in the state—who lives on a pike twenty miles from Lancaster. He read one of the bulletins that gave the deaths in Kentucky from diphtheria—and half of them didn't have a doctor within even three or four days, and none of them had anti-toxin administered within twenty-four hours. He had read this, urging that the doctor be called immediately. He telephoned to a doctor to come—naturally it cost $20 for him to come. A man on a little farm can pay $20 for one visit, but if he pays it each time a case of diphtheria or fever there is comparatively little for him left after he pays his bill, if he has an ordinary farm. This gentleman called for the doctor. He came promptly, and he paid him $20. Only a short time before there were four doctors in that immediate section. There was one now within nine miles who could not be secured.

The problem is economic. It is natural for us to feel, if we had plenty of hospitals and plenty of things to make our rural districts attractive we would have no difficulty in getting doctors in those sections. But we are not going to have those things in most of such localities for a generation. We might as well talk about the millenium as to talk about the time when we would have enough good roads for all or even half of the country physicians to travel over. We will have to import a population by then. That is going to be fifty years from now. We are very hopeful. those of us who are the most optimistic, that within thirty years from today an automobile can travel along roads connecting the various county seats of this state. When you think of just one road through a county, on which less than seven per cent of the county population lives to which they have access—frequently not more than two per cent—you can realize the size of the problem.

Two acts have been introduced in the House and Senate which it is very important for us to understand. One is with relation to physical education. We consider the physical education now one of the most important laws from a health standpoint ever enacted in Kentucky. When the time comes that the teachers of the state are actually teaching children the value of their bodies and how to care for them, we will have gained a large part of the victory that we need to have in order to secure the results we desire. There is no appropriation in the law and nothing compulsory in it. It is merely a permissive law and should not be repealed.

That is our problem and we must meet it with the guidance of the God who directs us, with the kind hearts physicians have, and with the best brains we can bring to bear, to help solve the problem. We want to solve it in a way to preserve the best in our profession, and at the same time carry to our people all the benefits we can carry to them." (Applause.)

The Secretary suggested that the county representatives who brought resolutions passed by their county medical associations be called upon for those resolutions.

J. A. STUCKY: "Any delegates who are present and have instructions from their county society, we will be glad to hear from them now"

SECRETARY:("At the proper time when they get here, what I had proposed to do, and I would like to have your advice before that, was to present to the legislature alternative plans that have been suggested, and state the reasons for presenting these different plans and their defects—each of them—perfectly frank, to them, and then ask several members of the legislature who made a study of the question from the lay standpoint and who come from the districts where they have had the opportunity to do it, and then ask those of you who have views to present on those several plans, or any other plan, to present them before these men who want to study the problem. They understand its complications and difficulties now. They didn't when they came to Frankfort. There were fifteen bills ready for presentation, and they have not been presented because they are waiting for us to do something. One Senator to whom the lawyer whose advice he asked in drafting the bill said, "Have you seen Dr. McCormack? He is four times as big as you." The other said, "Size has nothing to do with it. If it did, a cow could catch a rabbit." The bill that man had to present was one providing that any man who could pass an entrance examination into a medical school showing he had sufficient ability to acquire knowledge, should be entered entirely regardless of the length of time he had been in school or where he had attended, and specifically provided it should not be required of him to know foreign languages—because none of them were spoken in Kentucky. They followed from that to all sorts of constructive changes to be brought about. I was going to present the whole thing to the whole crowd because you see I am in an unusual position—representing both you and the people of Kentucky. I am your representative at the General Assembly, and I want to present the matter to both bodies in such a way that together we will solve them. There is nothing that cannot be solved. It is up to us to do it right.'

LOUIS FRANK, Louisville: "I think it would be a good idea if these various plans Dr. McCormack has spoken of could be briefly presented at this time to this meeting. Give us an opportunity to think of them and form an opinion. I think it is very well to know what is to be presented and give us an opportunity to digest it and put us in better position to discuss it."

J. A. STUCKY, Lexington: "If there is no objection to that we will ask the Secretary briefly to outline the plans that have been suggested."

It was suggested that the time for speakers be limited.

THE SECRETARY: "The first thing is to leave things as they are. That is the first alternativeleave it in status quo. Then the next is the suggestion made in the bill which we now know cannot work—because the Council on edMical Education has notified us if the university accepted students under those conditions it would be the same as killing it—it could not exist because it is not controlled by the state. And we would not as the representative either of the people or the profession ask the University of Kentucky to commit intellectual suicide. So far as that provision in the law is concerned it is useless to present or consider it. When it comes to the time a man should spend in medical study and when he should practice, that is a matter for medical control. (Dr. McCormack then read Sub-Section C of Section 3 of Senate Bill 36.) Then the appropriation section is practically the same as at present, to assist in qualifying the students. The third alternative would be the establishment by the state of a college which would be under the control of the General Assembly and which they could handle as they pleased, could control as they can any other state institution. And the fourth alternative, and the one we would all view with regret, would be the repeal of the medical practice act. Those are the alternatives we have in mind.''

W. O. EATON, Ashland: ''You say this was discussed at the Chicago meeting. What did they think of it?''

THE SECRETARY: ''Dr. Billings will answer that better than I can.''

At this point the committee from the legisture arrived.

THE SECRETARY: ''I move you that the medical members of the General Assembly be invited to take seats with the President. They are all our representatives—we want the members of the legislature to know that in representing their people they are also distinguished members of this organization, and that we have confidence in them and want them to know how we love them. Motion was seconded and unanimously carried.

''It is with these alternatives before us that we invite those present to discuss these medical problems, and I know the gentlemen who represent us in the legislature have the same regard and respect and know they are just as anxious to solve the problem as you—they on their part and you on your part. Now they are coming to you for advice, as they were requested by the Governor in his resolution to consult with you—to solve it and solve it right.'' (Applause.)

J. A. STUCKY, Lexington: ''We will be glad to hear from Senator White.''

THE SECRETARY: ''He is from the County of Monroe. He made his race on this particular proposition—that he would present to the General Assembly, in so far as he could do so, some resolution of the problem confronting us today.''

SENATOR F. M. WHITE, Monroe County: ''Mr. President, ladies and gentlemen, I feel somewhat embarrassed to appear before an audience of this kind, having been for a second time in my life before a medical body, to make an explanation concerning anything they have done or ought to do in the future. I am glad to be before you, although I am at a greater disadvantage than usual when I come before the public, not being in the habit of meeting this kind of a body. In my county the Medical Association met and had a dinner and invited me before it, and I said in a little talk I made that I guessed I had gotten into the medical profession quicker than any other man in the state of Kentucky—and so I am here today to take a higher degree. Now, of course, I know very few medical terms, and in what I shall say here today I shall be very plain and in plain terms that you can understand. What I say will be, of course, in a scattering way, as I was not intending to say anything on this occasion and did not know till yesterday that I would be here, so I am here this morning. I will tell you in the best way I can of the conditions existing in my section of the country, as I have discussed these questions with the people in that part of the state, and I think I know something of what the people desire or would like to have, or the conditions they would like to have and what they need.

What can be done along the lines laid down before us this morning is a question with the people of this state. The conditions are very bad, as stated by the gentleman who preceded me, but it looks a little improper for me to tell you people of these conditions when you come from all parts of the state and know more of them from a medical standpoint than I do.

The high school proposition has been discussed. Dr. McCormack struck the keynote when he said that the very poor in the country were the ones to be looked after, not only in regard to entering the medical schools, but also the high schools. They cannot do it. The boy living eight to ten miles from a town cannot reach the high school qualifications and two years college, or two years premedical. The poorest boys many times make the very best in whatever profession they may enter whether school, law or medicine. In my section the boys do not often consider or intend to enter other professions than teaching, law or medicine, and many make teaching the stepping stone to the other two. I am not here to discount the medical profession or any one in it. The thing we want is more such men, like those we have in that profession today. It is a grand and noble one, and most young men desiring to enter the profession cannot meet the requirements. Many young men and older men in the country who would now be serving the people in a medical way, cannot because the opportunities were not such as they should have been. Many of you have entered this profession who had no better opportunities than hundreds of those scattered over the hills of Kentucky and who now desire to study medicine if they only had a chance. Our doctors a few years ago under the old standard made good. We do not have many who did not. The question with the people is this: Shall we have such medical skill as we now have or shall we have none. Under the present system we shall soon be out of doctors. We have five or six doctors in my town, about fifteen in the county.

We are blessed probably with more doctors, according to population, than any other county in the state. We have more boys in the medical college than any other county in my district. The four counties in my district besides my own have only three or four doctors each. Some of the counties of the state have not a doctor.

Most all the doctors in my county had only a common school education as a preparation to enter the medical school. Most of them were schoolmates of mine. We sat in the school room together. They taught school in the rural districts in the fall, went to the medical school six months to the year for three years and made good doctors. Many of you know some of them and you know they are up to the standard. Some of them went to the war, were promoted for efficiency and came back with high titles. They did not take unnecessary courses, they are making good. Shall we continue to have such service as these men are able to give? Can we not get them under a lower standard of preparation than we now have? Not a lower standard of efficiency. I claim that if one has a common school education he is qualified to take up the study of medicine, and this is proven on the ground that our present doctors are good ones. But it is claimed here that we cannot force the colleges to receive them on this basis, but the people are demanding some kind of regulation that will give them more doctors.

This is a day of specialties and I believe in a man's being efficient in whatever he undertakes. If you practice medicine you don't need to know law, and if you practice law you don't need to know medicine. But you need to make your profession a specialty and be efficient. I believe in a high standard, but you can make it too high. If a farmer goes out to haul hay he can make his standards so high that he cannot put the hay over them, then his day's work is ineffieient. He can make them too low. But I want the standard the right height by which the best and most efficient service can be rendered. What is the use to require a knowledge of Latin, German, French, geometry and trigonometry before one is to learn medicine? You do not undertake to demonstrate a geometrical proposition to a sick man before you administer the medicine. Not many of you took a course in these branches and you have reached the standard of efficiency I am talking about.

Of the medical students from my county who have graduated in the last fifteen years not one, as I now remember, has returned there to practice his profession. The expenditure of money to take the course is so great that they cannot make it back in rural sections and must go to the centers of population to get a return of the outlay. In one of the counties I represent I know of but two doctors, and I understand there are three counties in the mountain section of the state without a single physician. Under these conditions half the people, at least, are without doctors and without medical aid. Doctors are so scarce the needs of the people cannot be reached. I was in a rural section last summer where they were paying a doctor $25 a trip from a distance of fourteen miles. I have learned that the State Board of Health has made arrangement by which a physician has been placed in that community. Poor people cannot pay this price and are without medical aid in many sections. The doctors must have more for a long trip than for a short one, but we must have conditions by which more doctors will be sent out to the rural sections, scattered six or eight miles apart, then the people can be reached at a less price. We want doctors within reach of all the people.

All this high school and so many years college seems unnecessary to me. You forget half or two-thirds of it before you get through the medical course. Don't misunderstand me—I think everything one learns broadens the mind and enables him to more readily grasp something else. Medical students should give all the time possible to the things required to be known in a medical way, rather than spending the time on the unnecessary things required in high school and college. If a man has the price to give his boy a medical training, and that is $10,000 after he passes the common school course, he will not often do it, for he can make a fortune in many other ways in the time required, and that is eleven years.

I heard a man, who has a boy in a medical school, say that he expected to give his boy an occupation that he could follow at home, but that it was costing him twice as much as he expected in the beginning, and that when he graduates he must send him where money is more plentiful that he may get a return of the price. So he will not return to the rural community.

In Cumberland, Clinton, Russell and Wayne Counties of my district many of the people are without medical aid—half of them are without it. If half can do without it all can do without. But I believe in a condition that will give medical service to all. When we had four or five medical colleges in the state three or four hundred doctors were graduated from them each year. They returned to the rural section of the state—we had many of them in Monroe County—now owing to the scarcity of doctors they have gone to the towns and there they will remain. So the conditions are getting very, very bad. The people want some kind of aid and would rather have a sorry doctor than no doctor at all and will soon get to the point, if something is not done, where they will call on any one who can give them help whether it is a licensed doctor or not.

When we used to turn out these three or four hundred a year they didn't over-supply the demand. You didn't hear that there were too many. But since it has been cut from three or four hundred to twenty or forty you hear the cry of alarm come from every section of the state. We need more doctors proportionately scattered over the state, especially so the rural poor can be reached. How are you going to reach the people up the hollows beyond the forks of the roads? They want aid when their sick bodies need it. Good roads don't reach there. We want doctors within reach of these people who can render service when needed.

As a basis for entrance into a medical college let a student be the holder of a certificate to teach in the elementary schools of this state, take a three years course in a medical college and then be licensed to do general practice. We believe this will bring about the relief sought.

This condition exists all over the United States—in Massachusetts, the center of population, arts, science, literature and schools, seventy-three towns of good size have no doctors. What are they doing? The councils of some of these towns have said, "We will guarantee a physician $5,000 a year who will come to our town and practice his profession." Then if he does not make that sum they pay the difference. Other towns have offered a bonus of $500 a year to any doctor who will locate with them and stay one year.

We learn of sections in the West that are as large as the state of Massachusetts with only two or three doctors. In some of these sections doctors are scattered from 20 to 100 miles apart. Not only half of the people there but most of them are without medical aid.

I have been told that there were forty-two graduates from the medical college of this state last year. Very few of them were Kentuckians. Not many of that few returned to the rural districts. One was from my county and he went to more remunerative parts. We must shorten the years and the expense of preparation then the medical graduates can afford to remain in the rural sections, for there they get a return of the smaller amount expended.

The health clubs and the nurses have done much good work, but they cannot reach every part of the country. The places we have spoken about cannot all be reached by automobiles and trains. I am not prepared to say just what can be done by legislation, but we are here today to try to get together and reach some solution by which conditions can be made better.

The Monroe County Medical Association indorsed, in the main, all I have said here today. A committee was appointed to draft resolutions indorsing the things I said before that body and what I have said here is about the same I said there.

Gentlemen, what I have said has been very scattering, but I hope you get my idea. I was invited to appear before you and give the rural conditions as I see them. That I have tried to do.

I made a speech similar to this down in my district to the colored people and it struck them very forcibly. At the conclusion a great, big fat lady came from the rear of of the house, took me by the hand and said, "Law sakes alive man dat am de best speech I ever heerd. I enjoyed it so much. You speak more like a colored man than anybody I ever heerd."

I thank you for this opportunity.

It was unanimously agreed that the succeeding speeches be limited to ten minutes.

REPRESENTATIVE E. E. NELSON, Whitley County: "Ladies and gentlemen, members of the medical profession: I am in deed proud to be with you. I am serving my fourth term in the lower house of the Kentucky General Assembly and I want to say to you there has never been a problem confronting the legislature, during my whole legislative career that demands at the hands of the people recognition by the legislature more than the question that is under consideration here today. I want to say to you fellow members that I never have been a fanatic on any question. I have always tried to be conservative, and I may disagree with the distinguished Senator who has just taken his seat on some of the remarks that he has made. I believe that if we establish a medical school in this state under the supervision of the Kentucky Legislature, that we should meet on conservative ground so far as the educational qualifications of the students to enter that medical college are concerned, and I would put it no less than a high school education. But I do claim that it is not necessary for any student to enter a medical college who expects to practice medicine in the rural districts of this state to study major surgery, to study microscopism, the laboratory work as extensively as it is now required of medical students. What we want is for the doctors to know something of the diagnosis of the diseases, obstetrics and the diseases of the children, so they will meet the requirements of the rural district people. When they require a major operation we can go to Louisville or send him there for an examination. Now, my friends, last summer I was called on by the medical profession in session at my home town to make some remarks. I told them in my remarks on that occasion that if we expect to have rural district doctors they must come from the rural districts and under the present high requirements that I would question our getting them. 'Many a flower is born to blush unseen and waste its sweetness upon the desert air.' I want to say to you that there is many a boy in the state whose inclination and ambition are to enter the medical profession, but you have set the requirements so high he cannot enter it. I want to say that a man is born to practice as much as he is born to do anything else.''

SENATOR J. D. WHITEAKER, Morgan County: ''Mr. Chairman, ladies and gentlemen: I have never qualified in meetings of this kind except when they are reduced to what this has been—to a testimonial meeting. I, of course, have lived long enough to become qualified to enter a testimonial meeting. I have wondered, and this is not in criticism, but I have been wondering what my associates and good friends are in favor of with reference to the subjects in hand. After having had a little experience in the legislature and having heard many a man when he answers the roll call explain his vote, after he has talked ten minutes I have often wondered which way he is going to vote. And I am now wondering about what plan is going to be suggested or what will be done to secure the end for which we are seeking. Some seem not to have understood that we so often speak of the exceptions and not of the rule in so many things—certainly in reference to individuals who have not been trained and who have succeeded in their profession. And at the same time we can refer to many who have had excellent opportunity and have failed. I was thinking, I believe, when Senator White was talking of what my cousin, who was a great friend of mine, said to my father after I had decided to try to study medicine. My father was very much opposed to it and for the first time in my life I surprised him by going and having my way. I had tried to be very dutiful and he expected me always to be. I decided to try to study medicine. This cousin, who lived at the county seat, my father knew exercised influence over me, and my father talked with him to get him to try to change my mind. He told my father, 'Cousin Alex, he hasn't the sense to make a doctor.' I have found many times men qualified for many things haven't made a success as a doctor. I can say that I have been in the profession thirty years. In my campaign last fall I was attacked by my opponent when his men were going around the country to say it was a mistake to send a doctor to the legislature. I was in Louisville one day and I tried to get in communication with Dr. McCormack, and I did talk over the telephone with the older Dr. McCormack because I confess I didn't know just what steps might be taken to remedy the thing or change it. And after I have been down here a while and have heard the subject discussed I still don't know what steps to take. And I am not complaining of myself as much now as I did then for not knowing more about it. I believe with all the remedies suggested that conditions will not be much improved. In the first place, there is a tendency for people to drift to town, and that being a fact we might just as well meet it. We cannot evade it. There is another fact in the country that prompts all of the better-to-do families just as soon as one of them gets sick to hurry away to a town, and the more money they have the further they want to go, to see some specialists, and as eminent a one as they can. We cannot blame them for that, and if we criticise the people for it, it won't do any good because they will do as they want. The question was asked and the answer was given—that the fellow who knew where the doctor was, was the next best thing. I have contented myself with treating the little ordinary inferior things in my community and when I find something I don't know anything about—and I find them almost any day, I have been able to tell them where to go—not that the doctors in town have more sense than the ordinary fellow in the country. I won't admit that because I am one of the other crowd —but they have the equipment. You can educate ten thousand country doctors and keep them in the country, but the laboratory work can't be done in the country and the people must go where it can be done. In thinking of the sections of my country where doctors are so scarce, since sitting here I have been studying if there ever was a time when they had doctors, and I am telling myself there never was a time—even when doctors were not required to have a license, even then in these sections they didn't have a doctor. We cannot, as a profession or as a legislative body or a doctor, we cannot compel people or induce them to go locate in such sections.

The thing that I consider of most importance is to in some way have it so that our county seats and the larger towns not in the country will not be destitute of doctors. I don't believe we have had a doctor locate in my county in the last fifteen years—not a medical student in the last fifteen years. I am not as pessimistic about it as some. I think that finally a solution of the thing will be that the state must provide at least one county hospital, say at each county seat. That will form the hub of the wheel or the center of the group for the practitioners, and that four or five, maybe six or eight men will be there and each will have his branch, and that he can make a living out of it. Then if we must have men in the rural districts, if this does not satisfy the clamor, I believe our medical schools will be compelled to put in a course for what we might call a licentiate, and allow him to learn internal medicine, minor surgery, so he can get out from the county seats and do work—and I don't know whether the work he would do would be of much account or not.

"The complaint in my section is largely that it costs too much. Now much better than upset everything and be criticised by every other state and the medical profession would be for the state to pay a stipulated amount, say five hundred dollars a year on the fees of medical students—possibly require them to locate in the rural districts—not bar them from the county seats, but from cities of the first, second and third class. And I don't believe it will be impossible to work out. I shall as a member of the legislature vote for almost anything that is offered, because I am cowardly enough to not want to go back home and not have my neighbors think well of me. It is to be regretted that such things are expected of us sometimes—particularly in view of the fact that it was made an issue in my campaign. I did not promise anything about it. I only made one promise in my campaign and that was that I would try to do right. The things I have promised all my life have given me more trouble than the things I never said or never promised. I have found it so in this case. I will be glad to co-operate with the State Board of Health in any way I can. I do not know what the solution will be. I do not believe that any young man should take only one year's training if he can take three years. I'd better tell how much money I made in the first five years of my practice. I taught school. You know it has been said we could teach in the fall the schools in the rural districts and enter in January. I taught school and paid my fees, and I never have thought about how much I got at school. I was loafing around at a clinic some years ago at Louisville and kept talking about how different things were now than when I was at school, and they were imprudent enough to ask me what they gave me when I was there, and I said they gave me a diploma and that's about all. What little medicine I know, and heaven knows nobody knows better than I do what littles it is, I picked up while in practice. I have not attended a medical society, that I recall, except you call this one, and the one I attended in Louisville for fifteen years. I am not a member of our county medical society—possibly not any fault of mine. If we have to work sixteen and twenty hours out of the twenty-four there is not much opportunity for the other. But we do have an opportunity to learn from observation. I have rather drifted off from what I started to say in giving my individual history.

"I want to suggest—don't get excited about this, now—I want to suggest, if we can give any relief—and I don't want to get on both sides of it like I have seen other fellows—I don't want to say we are not going to lower the standards and we are going to have doctors. We are going to do something.

We can not be for things and against them. That is utterly impossible. We would just as well meet this. I doubt very much if the boys who have put in six or eight or ten years of their lives will go back unless you have roads. I am trying to educate a second cousin now, and he is taking his second year college work. I think, of course, he is a very bright boy, and I encouraged him to go and told him I would finance him if he would study. I tried to make him promise if I did it that he would try to come back home. But he didn't promise. He is a kin-folk, as I told you, and they don't promise well. I don't know what he will do about it. But my idea is for the state to provide a fund of some kind in some way to help pay their expenses and possibly require them in remuneration for this to practice at least a certain length of time out away from the county seats.

"I know now what I was thinking about a while ago—I had thought that after one year out of school I would have enough money to buy me a horse. When I had practiced two and a half years I owed a year and a half board bill. That is the actual truth—and the good people decided not to keep boarders any more—in order to get rid of me. If you help a student and expect him to pay something in the first five or ten years, I hope you will think something of what you would exact of a boy, for I won't be a party in requiring something of a boy he can not honorably discharge."

SENATOR BELL, Anderson County: Mr. President, members of the medical fraternity, members of the General Assembly—and I believe we have some honored ladies in our presence—when I came here this morning I had not the remotest idea that I would be called upon to take part in the meeting. I thought it was a medical association meeting to discuss a plan along its special line, and wanted us to sit here and take it in, like the dripping of the dew in the morning. So I have no matured idea on the subject under discussion. I believe there is one subject so closely related to the subject before this Association and before the Assembly that we have ignored. And that is good roads. We are called upon to submit a fifty million dollar bond issue to make boulevards all over the state, from the north to the south, from the east to the west, and it appeals to me if the bond issue should be submitted and the people should vote it and such a condition should be brought about within the next five years, the proposition discussed here this morning would be more readily solved. If you have the roads you can travel them morning and night with the automobile, and you will find the doctors located around the centers of civilization.

"There is no question that the problems represented here exist in different parts of the state. I believe we ought to get down to a practical method in the discussion of the subject before us. In conclusion I will say that my friend Pal Garner, the rural Senator, has almost told the whole story in one sentence. 'If a fellow has sense enough to get away from those conditions, he will have too much sense to return.' "

REPRESENTATIVE GOSSETT, Simpson County: "Mr. Chairman and gentlemen, I did not come over to say anything. I came to hear what was to be said. I wish it were possible for me to offer some solution to this great question. I have received quite a number of letters. Doctors have come to Frankfort since I have been there to see me and talk about this matter, urging me not to vote for lowering the standard of medical education. I had a letter from home with every doctor in the county signing it asking that the standard not be lowered. I did not know as much as I did before I came over, and I know they didn't. I am sure if they were here and could hear of the condition of things in the rural district they, too, would change their minds. But whether or not it would be good policy to lower the standard of medical education I can not say. I do not believe if you take an ambitious man and give him a fundamental course in medicine and let him go out among doctors who have had full and proper training if it would not form or cause a line of demarkation, as it were, between the doctors. I think we would have a rupture. Some doctors who had been thoroughly trained would feel possibly they could not place themselves on a level with those whose course had been modified. So I must say I am not willing to offer any solution to the proposition. As Senator Bell has said, I believe if we have good roads in the country, as we should have, as many of our states have, that would be a good solution to the problem. However, I am willing to help and try to satisfy the people in the rural districts any way that is best or that may best please the people."

SENATOR MARSHALL, Henderson County: "Mr. President, ladies, and gentlemen, I want to confess at the outset that I haven't a thought to contribute to the solution of this problem in any way. I realize it is a serious problem and one with which I have never been confronted. I come from the good county of Henderson which is so attractive that we have plenty of doctors. Now, I supposed that the General Assembly had been invited to sit as a jury and to hear your solution of the problem. We have been crying up there in the Assembly for a doctor. We don't want a homeopath because his doses would be too small. We are even afraid of the allopath, and the horse doctor would not give us a sufficient dose. We need a business doctor for the affairs of this state. We are groping around for a Moses to lead us out of the conditions confronting all classes—rural, municipal, and manufacturing. I am not going to consume any of your time as I have no solution to offer you and I simply thank you for asking me to appear before you."

SENATOR B. F. REYNOLDS, Nicholas County: "Mr. President and General Association, I do not know that I can add very much to what has been said. Besides, I only came up here—as I believed—to get some plan or outline by which we may give the people in the rural district some relief from a shortage of doctors. I believe that is the question, as we would say, before the house. Of course, many of us differ along this line. I would say as to my personal views, as I have talked with the members of the Legislature, they are all willing to give this relief and it is only a matter or a question as to how it shall be done. It is for that purpose that we came up here, to hear the medical profession in person—if they have a suggestion to make. We are perfectly willing to follow, and as I say, give such relief as can be outlined. I think that the matter should be carefully studied before we put out the program. In fact, while I want the people to have relief, yet I want the medical profession to have protection, and I see if we are not very careful where we can make a great and serious mistake. So I advise that we go slowly and study thoroughly what we are doing before anything is done. It is unquestionably a fact that in some districts the people are in great need of physicians, and it is a fact that we need the men out there to assist the doctors in town. Of course, if you haven't the man out in the field the practice will all shift to another wing of the profession. It is a fact that the men doing surgery in the towns have not suffered to the extent that the man following general practice has. His tribe is almost extinct in the rural district.

"As I say, we stand ready to aid the people and work out for you what you think is the best plan, and I think we should adopt it and are ready to adopt it."

THE SECRETARY: "Before adjourning I would like for the body to think of this as a constructive program—that we request the General Assembly to pass an Act permitting the needy districts to build, equip and maintain local hospitals with state aid for such institutions as are built on a well devised plan. That is the Iowa plan modified for our needs, to build smaller hospitals of the type and kind to help local problems, so the local doctor would have facilities to practice modern medicine, with the view of decreasing the number of people going to city hospitals. Consider the problem of all-time county health officials—the problem of teaching to people everywhere such things as we now know—of having nurses and all-time health officers carrying lessons that are needed to the people. That we arrange for scholarships for the medical course in the medical schools, with the provision that a licentiate thoroughly qualified may be able to locate in these various hospitals where it is possible to do it; that the localities be permitted to subsidize—and the doctors be guaranteed to receive certain stipend with state aid—and with state aid assist in a redistribution of doctors—where there are too many doctors in a city and town, to redistribute them into rural districts. Such a program can be carried out.

I would like for us to be thinking during the dinner hour of that problem, together with giving our undivided and whole-hearted support to such a program as laid out by the various senators who are attempting to devise such great plans to improve the rural districts, so that roads can be opened and the conditions improved in Kentucky with a view to bettering the conditions of the state.

"In view of the fact that the representatives of the State Legislature have come here before this body of Medical Association in this state for guidance and instruction, in view of the delegates coming from the various counties wherein all of this has been thrashed out in the local county societies, in view of the fact that some of them may go back at an early hour, I move that immediately after the noon hour, for the instruction of the delegates who want to go and for the instruction of the members of the Assembly, that the first part of the afternoon program be devoted to a report of the representatives of the State Legislature and of the delegates of the various state societies in our presence."

The Secretary stated that was the program and it was unanimous.

J. A. STUCKY, Lexington: "I simply want to say that I have seen personal illustrations throughout the mountains of Eastern Kentucky in the last twelve or fifteen years of all of the incidents mentioned by Secretary McCormack. I have ridden over those hills in investigating trachoma. I have seen the school houses and the homes he has described. I have slept in those cabin homes. Just one illustration, gentlemen: We were caught in a storm and had to stay overnight. The river swelled rapidly and fording was impossible, I had nine children on the way to the hospital with trachoma and other diseases. We stopped at a small cabin. There were seven children in that home with trachoma. The mother of the children had pneumonia. I slept on the porch that night and in the morning after watching the mother, who was just passing through the crisis of the disease, I told the husband when we were starting, 'You must have a doctor.' The nearest doctor was eleven miles up the mountains, and when I got word to him over the telephone, he said, 'I will ride over and see them. With the condition of the roads now I think I will get there before midnight.' You are familiar with the warning sign at railroad crossings, 'Stop, look, listen!' There are two things to add to the sign, 'Stop, Look, Listen, Think and Act.'''

Adjournment for luncheon.

AFTERNOON SESSION

FRANK BILLINGS, Professor of Medicine, University of Chicago and Rush Medical College:

The problems under discussion are not confined to the United States. England has like problems and is attempting to meet them by establishment of rural hospital centers which will be open to the general practitioner in the care of his patients. England has a Ministry of Health and has a quified committee investigating the rural conditions. It is the result of the investigations made by the committee that it is proposed to establish hospital centers.

Canada has like problems. Canada has a large territory extending from the Atlantic to the Pacific and much of it is sparsely settled. She has approximately seven millions of people. This makes the solution of their problem of greater difficulty than our own.

The problem which involves the medical and surgical care of the rural population in Kentucky and elsewhere in our country is important, but it is only one of the conditions which exist in the country which requires attention. Our problem, like the others, is related to the development of modern times and in part to the results of the World War. Conditions as a whole in our country at the present time are not encouraging in regard to the industries, such as farming, coal mining and transportation. These three principal industries are more or less related to the lowered economic status of other industries, of health promotion activities, education and to other factors which have to do with the well being of our people.

From what has been said by the speakers of the morning session, rural conditions in Kentucky, which are not unlike those in other states of the Union, are so deficient in domiciliary comforts, good roads, grade and high schools and in opportunity for social amusements, that no inducement exists for young people to remain in the country, nor do the conditions invite those who have left their homes to obtain an education and training, to return there to carry on their life's work. Therefore, the rural regions of Kentucky and other states lack a sufficient number of medical practitioners, of school teachers, of farm hands and of maids for domestic work on the farms and in the villages.

It is true that rural conditions of some states are becoming progressively improved by the building of good roads, the establishment of more and better grade schools, by the building of interurban trolley tramways and by rural free delivery and the rapid adoption of the telephone. Rural districts which have these improvements do not suffer to any considerable degree because of the lack of qualified practitioners of medicine nor from qualified school teachers and domestic help.

In former years before medicine had advanced to its present enviable knowledge of the cause, the prevention and the treatment of disease, the practitioner of medicine in the city and in the rural districts, even though less well educated, were able better to serve the people than may be done today in country practice.

It must be borne in mind, however, that the service of that day was not as good really as it is today when measured by its results. In that day the incidence of preventable diseases was much larger than today, and the death rate with the best of treatment which the knowledge of that period afforded, was much greater than it is today. Many of the practitioners of that day had little or no college training. Many held a license to practice because of years of experience and had no degree of doctor of medicine. They were practical men and met problems with commendable industry and more or less success. But, practitioners with qualifications such as they possessed could not practice efficiently today; could not meet the responsibilities which modern medicine entails.

During the last twenty years the science of medicine and surgery, the knowledge of the cause and the means of prevention of disease have advanced to an astonishing degree. In keeping with this advance of knowledge the medical schools of the country have been obliged to advance the educational requirements for admission and to increase the time of study in the medical schools. From the time of the establishment of this United States of America, up to the present time, the responsibility for the medical education of students has rested upon the medical profession of the country. It is only within the last ten or fifteen years that philanthropic foundations have come into the field and have helped to finance medical education in some institutions. A good many members of the medical profession believe that conditions established by and demanded by the philanthropic foundations in their financial relation to certain medical schools have been harmful rather than helpful to medical education. This is a controversial question which I will not discuss. In 1903-4 the American Medical Association, which represents organized medicine in the country, took up the matter of medical education with new vigor in the attempt to improve it. At that date there were approximately 165 medical schools in the United States, many of which were proprietary in character, and the educational standards in some of them were poor. Some of them were conducted solely for the benefit of the members of the faculty who were the owners. Now in spite of this condition of medical education, many of these graduates very poorly qualified for the practice of medicine, afterward improved themselves by postgraduate study, by reading and by every available opportunity for professional advancement and became splendid practitioners of medicine; indeed, some of them became eminent with national and even international reputations.

The improvement in medical educational within the last fifteen years has been phenomenal. This improvement has been characterized by the disappearance of the proprietary medical school and now we have about one-half the number of medical schools compared with the number which existed twenty years ago. Of the existing schools the majority are conducted by the universities, some of which are state institutions.

With the diminution in the number of medical schools there has been a like diminution in the number of medical students. Nevertheless, the number of medical students in the United States up to 1917 when the United States entered the Great War was approximately 17,000. During the Great War the number of students diminished, but the statistics show that for this school year beginning in the fall of 1921, there are approximately 15,000 medical students in attendance at the medical schools of the country. It is known, too, that approximately 2,000 additional students endeavored to enter the medical schools. Therefore, if there were available facilities in the existing medical schools there would be at this date approximately 17,000 students in attendance. This number of medical students will afford an annual graduation of approximately 4,000 men and women. This number of additional qualified practitioners should meet the needs of the country most adequately.

We all recognize the fact that there is a lack of practitioners of medicine in certain communities and particularly in certain rural districts. It is evident to those who have studied the conditions that this lack of practitioners is not due to a deficient number of qualified practitioners in the country. The distribution of the doctors of the country is at fault. This fault is due to two or more factors which I propose to discuss:

Of these factors, one of the most important is due to the error which has gradually invaded the medical school and involves the fundamental principles of the education and training of the medical student. This error is due mainly to the fact that modern medicine embraces such an enormous field that no single human mind can grasp the whole subject. In consequence specialism in medicine has developed as it has in every other walk of life. The majority of the members of the faculty of the medical schools are specialists. Each one views his field as very important and this attitude shapes his methods of teaching and the demands he makes of his students. Therefore, the medical curriculum in most schools is characterized by the demand of a far too great amount of teachnical training in the specialties of both medicine and surgery. The recent medical graduate is very apt to attempt to practice a specialty for which he is usually not qualified because he has been permitted or has been encouraged to specialize more or less in the clinical years to the neglect of a more routine general training. I believe, too, that the tendency to specialization during the clinical years of the medical curriculum is encouraged by the prevailing commercialism which dominates the whole world. Commercial greed is one of the greatest evils of the day. It is obvious to the medical student that the general practitioner receives a much less financial remuneration for his services than do his teachers who specialize in internal medicine or any of the narrower fields of medicine, or the general surgeon, or of the specialists in the narrower fields of surgery. It is no wonder then that the average medical student should decide very early that he will not be a general practitioner.

Now we have too many specialists in all the various fields of medicine. The mother of our art and science is general medicine. General medicine is the very foundamental foundation of all medical practice. General medicine as practiced by the family physician enables the qualified practitioner to bring to the suffering patient practically all the benefits which modern medicine affords. It was my privilege to serve as a general practitioner of medicine for the greater part of my medical life. Therefore, I think I may with justice hold the opinion that the general practitioner who is qualified is able to adequately recognize and efficiently treat from 80 to 85 per cent of the patients who apply to him for relief. From 15 to 20 per cent of the patients of the community may suffer from maladies which will require the combined services of a group of men who are especially qualified by education and experience to be able to recognize the intricacies of the morbid process by the application of blood chemistry, functional tests, psychological analysis and other means of examination and treatment which demand a special training and technical skill.

In other words, we need from 80 to 85 per cent of general practitioners in both the city and the country, and but 15 to 20 per cent of specialists who will be quite sufficient in number to meet the demand of the sick and injured.

It is my opinion that the educational requirement for admission to the medical school is not too high and should be maintained; that the time required for the medical course is not too long. Readjustment of the curriculum should be made which will enable the medical school to turn out graduates who are fundamentally well trained in general medicine, in surgery and in obstetrics. To this end more applied science should be taught in the subjects fundamental to medicine. In other words, the fundamentals of medicine as taught to students who are to become general practitioners, should be so modified that emphasis will be placed upon their application to the practice of medicine, especially in relation to the cause, the recognition and the treatment of disease and injury. In the clinical years his time from beginning to end should be devoted to acquiring dexterity and kill in the application of his knowledge gained in the study of the fundamentals to the recognition of morbid mental and physical conditions due to inheritance, to disease and to injury; to the study of the condition of the expectant mother and of her safe delivery at term; to the application of management and treatment of disease and injury including emergency and minor surgery.

We can arrive at a clearer understanding of what the training and education of the general practitioner should be as a student of medicine if we first make a statement of his responsibilities to the community he serves.

The family physician is responsible for the safe and sane treatment of the family in illness and injury and to preserve individual and community health. In his relationship to the family, he is the advisor in regard to practically all problems relating to education, general and personal hygiene and to community obligations and responsibilities. This implies the possession of character, honesty, and general ability. It implies a knowledge of the general principles of preventive medicine, sanitation and public health. He must be able to advise, guide and safeguard the expectant mother through gestation and to so manage the labor that it will terminate without injury to mother and child. He must be able to recognize serious complications at an early stage of labor so that consultation may be secured if he is alone not technically able to safeguard the two lives for which he has assumed responsibility. He must have a practical knowledge of modern infant and child welfare work. He should understand the underlying principles of psychology to be able to recognize psychopathologic conditions so that early treatment may be applied. He must be able to utilize simple instrumental and laboratory methods as an aid to physical diagnosis and this should include familiarity in the methods of diagnosis of diseases of the special organs, viz., the eye, ear and others. His knowledge will enable him to command a selected few tested and tried drugs which he will be able to use with skill and usually with great benefit. His general knowledge of immunology and bacteriology will enable him to apply standarized specific serums and a few antigenic vaccines with judgment and skill prophylactically and therapeutically. In the management of his patients he will utilize rest, a proper environment and available physical treatment. He will have a proper conception of active and passive exercises in the restoration of function and will avail himself of calisthenic and other active exercises which are always at his command. He will have a proper understanding of asepsis and will apply it in the performance of minor and emergency surgery. He will be able to diagnose and to manage the treatment of fractures of bones and uncomplicated joint dislocations. He will know his own limitations and will safeguard the lives of his patients by reference of major surgical conditions, with which he is unable to cope to qualified surgeons.

With this brief statement of the qualifications and responsibilities of the general practitioner, it should not be difficult to modify the medical curriculum to afford the medical student the adequate and necessary training to equip him for the important duties of a general practitioner.

This basic curriculum should serve for the education of the general body of medical students. After graduation if the young doctor desires to become a general surgeon or an internist or a specialist in any of the narrower fields of medicine and surgery, he should take the requisite post-graduate training in the necessary fundamentals of medicine and in the clinical subjects for a period of time sufficient to thoroughly qualify him in his chosen field.

Another factor which affects the unequal distribution of doctors is the lure of the city. The attraction of the city appeals to all classes of the people. The well educated young doctor who has spent a considerable sum to obtain his education desires to live among educated people, to be in contact daily with his medical colleagues, to have opportunity for professional advancement through available educational institutions, hospitals and medical societies and to be able to enjoy the social advantages which the city affords. Not the least attraction is the belief that a city location affords an opportunity for a larger financial return. On the other hand, the conditions of rural communities which I have already enumerated, do not attract the medical practitioner or any other individual capable of productive work as a place in which it is suitable to live or to bring up a family.

To return to the subject for which this conference was called, viz., the relief of the lack of medical and surgical care of the rural communities of Kentucky.

As I undestand it, two propostions are made to afford this relief.

One proposition is that the entrance requirements of the Louisville University Medical School be lowered to a minimum requirement of the high school; that at the end of the third year in residence; that is, at the end of the junior year, a student who desires to do so and shows his qualification by a knowledge of the principles of general practice by withstanding a thorough examination in the studies pursued may be given a temporary license to practice medicine in Kentucky in a rural district. At any time during or at the end of the five year period he may appear before the proper state educational authority and by examination prove that he has made up the studies in which he had been conditioned when he was admitted upon the minimum high school requirement and if successful in this examination will be eligible to the degree of Doctor of Medicine after one year further attendance in residence at the medical school.

The second proposition is that the legislature will enact laws which will authorize the state to organize a state medical school with standards of admission and with a time fixed for study in residence considerably less than that now existing in "A" medical schools.

It is my opinion that neither of these propositions will relieve the situation permanently. It may be that the first proposition if modified may offer some temporary relief, but I doubt even this help. I am strongly of the opinion that the Louisville University Medical School should not lower its entrance requirements under any circumstances. I must call your attention to the fact that the members of the medical profession of Kentucky who are members of the American Medical Association, through their representatives in the House of Delegates of the American Medical Association, co-operated with and approved the elevation of the standards of medical education as carried on under the direction of the Council on Medical Education and Hospitals. I do not believe that the members of the medical profession of Kentucky will retreat from the splendid position which they occupy in regard to the need of high standards of medical education.

If, at the end of the junior year the medical student at the Louisville University Medical School is desirous of engaging in practice, and if he shows his qualifications therefore by withstanding a rigid examination, I think it is a feasible proposition to give him a temporary license and for the Kentucky Licensing Board to assign him to a field of practice for a limited period of time. This would permit him to serve a rural community for a limited period of time with mutual benefit. At any time during or at the end of five years he would be eligible to enter the medical school and to obtain an M. D. degree.

The second proposition is wholly bad. It would be a very backward step for Kentucky to establish a low grade medical school for the sole purpose of producing doctors whose qualifications for medical practice were admittedly of a character to encourage them to settle in rural communities where conditions were not attractive to better qualified men. In other words, the policy is one which ostensibly fits a poorly qualified medical practitioner into a community which is unattractive as a place to live or to bring up a family.

The problem is one which may be solved, but it will require time. In the solution of the problem a constructive program should be adopted. This will include the improvement of rural conditions by building good roads, establishing good grade and high schools, improving domiciliary conditions, improving social conditions and in the establishment of opportunity for amusement and of other benefits which modern life should afford. All over the country rural communities lack hospital and diagnostic facilities. Under the leadership of the medical profession who will by this means secure the cooperation of the lay public, local communities may be educated to the need of county and district hospitals and will choose to establish them by a self-imposed tax either direct or indirect, for their own medical and surgical care under the leadership and administration of the medical profession of the community. In sparsely settled and poor communities it may be feasible for the state to establish hospitals and diagnostic centers, but most rural communities are so well-to-do that they should themselves pay for the facilities which will afford them hospital care when it is needed and treatment under the direction of their own physicians.

With the improvement of rural conditions to a degree which will make country life attractive, there will be no difficulty in obtaining an adequate number of general practitioners to settle in rural districts.

The Louisville University Medical School is a good one. It affords excellent education and training in general medicine and surgery. It has not sufficient facilities to educate a sufficient number of medical students to meet the requirements of Kentucky and the contiguous territory. I would suggest to the members of the legislature who are present and to the representatives of the House of Delegates of the State Medical Society who are present, that it would be a just and righteous act for the state to subsidize medical education at the University of Louisville with a sufficient financial assistance to enable the University to amplify its facilities to educate twice as many students as it is now able to train. This subsidy should be large enough to amplify its facilities and at the same time to diminish its tuition fee. Or the state may establish a medical school limited to the fundamental branches at the Kentucky State University located here at Lexington. This would afford an opportunity for the young men and women of Kentucky to secure training and education in the fundamentals of medicine at a personal cost which is within their means. If such an opportunity is offered, I am sure you have in Kentucky young men and women who are intellectual, who are industrious and who will make good even if it implies great personal hardship.

In my opinion the appropriation by the state of sufficient sums to subsidize medical education at the Louisville University Medical School, and, if necessary, at the State University at Lexington, will be far less expensive and of greater practical utility, than the establishment of the suggested new low grade state medical school.

This state help will enable the Louisville University Medical School to educate thoroughly an adequate number of medical practitioners, many of whom will seek a rural practice provided the program suggested for rural improvement is begun at an early date.

During the morning in the discussion the subject of doctors' fees was mentioned. We all know that the fees of the general practitioner are small as compared with the fees of the general surgeon or the specialists in surgery and medicine. This is a matter of great importance to the general practitioner, but the solution of the injustice which exists lies within the medical profession itself. The physician, either a general practitioner or a specialist, who is able to avail himself of a motor car, is now able to visit patients at a distance of twenty miles or more in a relatively short period of time. For the farmer or for a patient who is not well-to-do he should not charge the same mileage fee that he did when a horse-drawn vehicle was the only available means of transportation. No general practitioner who is a family physician would so over-charge his patient. The doctor who would charge a poor man a twenty dollar fee as described by Dr. McCormack does not live up to the traditions of the profession. It is the specialist who charges the relatively large fee. From time immemorial the general practitioner has been poorly paid and often serves without remuneration, frequently exposed to inclement weather and to loss of rest and sleep by service at all times of the day and night. As stated, it is the profession itself that must take the leadership in the correction of the injustice which is borne chiefly by the general practitioner.

This morning an argument was made against the study of Latin, Greek, or German, or French as a prerequisite to the study of medicine. I shall not quarrel with those who made this statement. There is some reason, however, for any individual to possess certain knowledge which if not of great practical use, affords him profit and pleasure which is often of the greatest importance to him. The average student in any branch of learning does not overwork. Indeed, the majority of students waste an enormous amount of time. It is often worth while for a student to take up an extra study as a diversion from his routine work. Almost any student will find sufficient time from his usual studies to take up French or German and to acquire a reading knowledge of either one in a surprisingly brief period of time. For the physician it is of great value to him to read the original articles written by French and German authors.

The cost of a medical education today is greater in time and money than it was formerly. Today it is more difficult for the medical student to earn his way through college than it was thirty or forty years ago. But it is done today. During my school days I was obliged to work my way in part and for the remainder I fortunately was able to command a credit which permitted me to borrow funds. I took three years in residence in medical school, which was, the longest term required at that date. I served a year and a half in a hospital as an interne. Later on borrowed funds I studied for eighteen months in Europe. Then without influential friends and in the general practice of medicine I succeeded in getting out of debt for the first time just ten years after my graduation.

Today I have a young protege, a boy with whom I became acquainted as a golf caddy. His people are poor. He was ambitious to study medicine and I encouraged him. Without financial help and solely from his own self-earnings he has completed the high school and in June, 1922, will complete the two-year university requirement for the study of medicine at the University at Chicago. His standing in his classes is creditable.

It is my opinion that a young man or young woman who possesses the right character, who is industrious and persevering and who has good health, will succeed in securing the general and medical education which is necessary for the successful practice of medicine today. It is just this sort of students whom we want in medicine. I am glad to say that I believe that there are thousands of just such young men and women in the United States who will study medicine because it appeals to them as the most useful and self-satisfying vocation of life.

There is plenty of work to be done by the medical profession. There are approximately 150,000 doctors who are licentiates in the United States. The last census showed a population of 107,000,000 of people in the United States. Qualified authorities state that the annual morbidity in the United States is a minimum of 20 per cent. That means that annually there are approximately 23,000,000 of people who are ill who require the attention and care of the physician or surgeon. It is also estimated that 40 per cent of the people are indigent and unable to pay for their care when ill or injured. Therefore, approximately 14,000,000 of people are more or less able to pay physicians and surgeons for their medical and surgical care. If this number of patients is equally distributed through the 150,000 practitioners of the country there would be no lack of practice for any one. The distribution is not equal and in consequence some individual doctors and some group of practitioners obtain an undue proportion of the patients. The choice of the doctor by the patient is a recognized right. The axiom to which I called attention should be borne in mind in this connection: The qualified practitioner who gives his patient his full attention disregardful of financial reward will have more patients than he can attend; in other words, he will be unable to keep them away from him with a gun.

The Secretary read the roll and the delegates from the state medical societies present responded.

J. W. NOLAN, Bell and Harlan County: "It is the sense of the profession of the Bell Medical Society that they are unwilling to consent to any further lowering of medical standards, and I also say the same for the Harlan County Medical Society. As stated in the resolutions I read this morning and as testified to by many of the physicians acquainted with the conditions in the country, there is no actual shortage of doctors at this time. There is possibly an unequal distribution, but as has been very clearly pointed out, these are community problems and must be worked out by the communities themselves rather than by the legislature. There is, it seems to me, a trend to socialize almost every institution we have in this country. Take the railroads—there is an industry which is absolutely socialist—Interstate Commerce Commission fixes the tariff rate and passenger rate. The Labor Bureau of Chicago and other federal institutions fix the wages of the men. Those roads are owned by the men only in name. They are actually socialistic, and it seems throughout the country when these questions arise in the community instead of the people exerting themselves to solve the questions, which are local, the Macedonian cry goes up to the legislature—'Come and help us do the thing we can do but we don't do.' The talk by Dr. Billings was very helpful. I think a solution of the problem could be arrived at. I am of the opinion personally that the suggestion he has made will go far toward doing that. Let the legislature subsidize to a certain extent the institution we have in Louisville, and after we have increased facilities there, if the matriculation does not increase and the needs are not met, then we can select the men who have the requirements and subsidize them and send them out. The man who has the training required of the Medical Association today, who will go anywhere, to Timbuctoo if need be, and live there with the conditions as they are today, simply for what he can get out of it—I wouldn't give a damn for him.

"The Harlan County Medical Society and the Bell County Medical Society are not in favor of lowering the medical standards."

W. O. EATON, Boyd County: "There has been so much said on the subject there is hardly any more for me to say. In a way, up in our country there is undoubtedly a shortage, and undoubtedly, as sure as time goes on and conditions do not change, there is going to be a greater shortage, because in the County of Boyd there are about twenty-three or four doctors. There are three under forty-five years of age, one of them the health officer, one an eye specialist, and I forget what the other is, but he is something besides a doctor. It takes seven years to make a doctor. Add seven on to forty-five, to fifty, to fifty-five, to sixty years of age. By that time half of the twenty odd will be gone. The second best way to get on with less doctors is to have less sickness—and to teach the people how to live. That can be done without doctors—such folks as Williams and other health officers. If you have any substance to spend, spend it on the folks who will teach people how to live, because if the folks stay well there will be enough for us fellows to do preaching. But I believe in the remedy Dr. Billings has told you, except that I would go further—I would make the teachers doctors on dietetics. I don't know the man's name who teaches medicine in the University of Cincinnati Medical Department. I daresay he is a man who has never been inside of a man's house except as a consultant. We want that kind of men, but want them to make specialists. But we want to turn out doctors instead of specialists—teach them medicine. Give them all the fundamentals. You can't know too much, I don't care what you are going to do. Give him all the preliminaries you can. If they are not fitted to practice medicine by nature and education, let them quit as soon as they come out of school. But if is it in them, make them be doctors at least ten years before they are specialists. The best school to train specialists in is the school of general practitioner. I think that covers that question. Teach the people how to keep well. Educate them. When you train a doctor, train a doctor and not a specialist, and you have solved the problem."

J. R. COWAN, Danville: "I want to say Boyle County members I have seen are opposed to the proposition for the reason we do not believe it meets the emergency in any way, and would work irreparable harm to medicine."

J. G. FURNISH, Campbell County: "I have the honor to be the delegate from Campbell County. As you know, there are two counties in the northern part of the state—Campbell and Kenton—two of the largest in population, have been permitted to have a society in common. We have in our society a large membership, and I say it with some feeling of pride that they maintain a standard equal to that of any society I know anything about. The subject under discussion today has become acute beyond doubt. It is very evident that something will have to be done in some of the communities with which we are most familiar in Kenuteky. I believe firmly that in a great many of the communities of Kentucky there is a shortage of doctors and they stand in great need of them. The situation is recognized in the society for which I am speaking as acute in some of them, and something ought to be done. The question has never been discussed when the society was convened, but there has been sufficient conversation, and I take it from what I have gathered of those conversations that there is a strong sentiment against reducing or withdrawing any of the requirements that now exist. I personally have no matured thought. I have thought of the question a good deal and have thought of no solution, but since it has been agitated here today some facts have been made pertinent in the discussion that it seems to me do offer a solution and the one appealing to me most is not to reduce the standard, but to adopt the local hospitals throughout the state. It seems to me that could be done in an economical way, and one that would be satisfactory to the people and give them facilities where they now stand so much in need of doctors."

W. S. SANDBACH, Christian County: "After listening to the lecture that we have just had, it seems to me that all these remarks are superfluous. I do not think that I have ever heard a better or more pointed address along these lines, from beginning to end, than the one we have just had the pleasure of listening to from Dr. Billings.

"As for me, I would be willing to say let Dr. Billings write this bill, the General Assembly pass it and the Governor sign it. I believe it would meet the occasion.

"It seems to me that the medical profession, at this time, is very much complimented. With a bill before the legislature calling for $50,000,000 for road improvement and $5,000,000 for school improvement, and at the same time asking the same legislature to lower the standard of medical education. Is it possible that the medical profession has gotten so far in the lead that it becomes necessary to turn us back that other lines may catch up?

"Everywhere there is a crying need for increased facilities in our school system, in our road system, in our marketing system, in fact, along all lines. We are no longer willing for our children to attend the same schools of a few years ago, to be housed in the same hotels, and attend the same church and listen to the same preaching of a few years ago. While there may be a shortage of doctors in some parts of the state, yet Senate Bill No. 36 cannot and will not meet the demands. I cannot see the need or object of lowering the standard of medical education. I want to say in behalf of the Christian County Medical Society that in its meeting of last Tuesday it went on record with the resolution I am going to read, and you will see that the same points were very forcibly brought out by Dr. Billings." (Dr. Sandbach then read the attached resolution.)

"*Resolved*, That it is the sense of this meeting of the Christian County Medical Society, January 17, 1922, that the present program, as advanced by the State Board of Health, for changing the medical practice act by additions which will permit undergraduates to practice medicine and its other provisions, do not strike at the cause of the shortage of doctors, that we bellieve this to be a step so far backward that we are not willing to submit to it.

"We respectfully submit that the educational requirement could be lowered to better advantage and that the medical teachings be changed from an effort to produce finished specialists to the production of general practitioners.

"W S. SANDBACH, Secretary."

W. H. STROTHER, Daviess County: "We went on record as opposed to lowering the standard of medical education. In preventing disease we do not need as many as we used to and I think Dr. Billings' talk has sloved the problem.

C. C. CARR, Fayette County, read the resolutions attached hereto.

Resolutions passed at special meeting of Fayette County Medical Society:

"1. That the Fayette County Medical Society desires to go on record as being opposed to House Bill No. 38 and any legislation having for its object the lowering of the present standard of medical education or medical practice in Kentucky.

"2. *Whereas*, It is reported that in certain rural sections of our state there is such a dearth of physicians as to create an embarrassing situation and a seeming lack on the part of our profession to care for the health and lives of those so situated.

"3. We pledge our best efforts to aid in the solution and correction of this unfortunate situation; therefore, it it

"*Resolved*, That a committee of five be appointed from this society to meet with the House of Delegates and the members of the health legislation committee from the House and Senate, which bodies are to meet at the LaFayette Hotel, January 21, at 9:30 a. m."

J. B. KINNAIRD, Garrard County: The Garrard County Medical Society is opposed to lowering the standards of the profession and does not believe in subsidizing medical students.

Dr. Billings spoke about it being a crime to charge twenty dollars to visit a patient twenty miles distant. I do not agree with him. I think a man should charge what he pleases. We have very few doctors in Garrard county but we have plenty of work to do; all are kept busy and charge reasonable fees. If we did not have enough physicians in the county, our neighbor counties of Boyle, Jessamine and Mercer on the North and West and Madison on the East are easily accessible.

Our Representative, who complains of lack of doctors in his section, is in easy reach of Burgin, six or seven miles distant; Wilmore, about two miles on an air line; Bryantsville, six miles away. True it is about twenty miles to Lancaster and we don't think our doctors charge more than twelve dollars for trips to that neighborhood.

We are opposed to lowering the standards and I do not think there is a place in Garrard County for a cheap doctor.

D. E. McCLURE, Hardin County: We had about two-thirds of the membership present in our Medical Society when we had under discussion Senate Bill No. 36 sent to us for discussion, and in regard to Section 3, sub-section C, they went on record as concurring with sub-section C with two amendments: First, that the limited certificate should be limited with one renewal only, and second, that students who desire to complete the four-year course should be permitted to do so, consecutively, without a two-year pre-medical work between medical college and the completed four-year high school; and unreservedly opposed to section 10 which makes the appropriation to put this in operation. If you will excuse me for using the term frequently used in this meeting, we are opposed to everything of a damn fool nature. We are offering two things to help relieve the shortage—one is request our representative to vote for the fifty million dollar issue for roads, and the other to make the doctors' fees equal with the undertakers. The exact situation in our county is this: I have this recapitulation for the information of the members of the General Assembly who are present: At Upton there is one doctor where there were formerly two; at Sonora there is one where there were formerly three; at Maxine there is none where there was one; at Glendale there are two where there were two; at White Mills there is one where there were two; at Vine Grove there are four, used to have two; Ryan Field has two, used to have one; Elizabethtown has the same number it has had since time immemorial. In Hardin County with a population of more than twenty-two thousand people and 660 square miles we have nineteen general practitioners, one eye, ear, nose and throat, one homeopath, one osteopath, and two non-descripts. We only have two men in the county who have ever taken out permits to write whisky prescriptions. We still have moonshine. Here is the point I want to call to the attention of the meeting. Out of these nineteen doctors there is not one under forty years of age—except me. There are four over sixty. The majority are over fifty.''

J. E. WELLS, Harrison County: The Harrison County Medical Society has taken no action as a body, but I have talked with most of the members and am familiar with their opinion and can say that they are opposed to lowering the standard of education or lessening the requirements for graduation. However, they are not opposed to any measure that will supply doctors to communities that are in need of them. Harrison County is well supplied with physicians, both in city and county. It seems to me the best way to secure doctors in rural communities is to make the country more attractive by having good roads, good schools, good churches, and last but not least, pay good fees.

PEYTON LIGON, Henderson County: ''I have not the census of the Henderson County Medical Society, but we have plenty of doctors there, as Senator Marshall has just indicated. I think we could spare five or six and have plenty left.''

CHARLES HUNT, Hickman County: ''We took no official action at our Medical Society, but as to the shortage of doctors, apparently we have a shortage; in reality we have not. Twenty years ago we had twenty-one doctors in the county. Today we have fifteen. When we had twenty doctors we were all busy. Now we have fifteen and none of them are busy much of the time. Two of the doctors are over sixty years of age and are practically out of business. I think the sentiment of the Hickman County doctors is that the standard be not lowered.''

E. E. ARCHER, Johnson County: ''The County of Johnson at the present time has seventeen doctors. We have recently imported three from different parts—one from Louisville, one from Falmouth, and one from Lee County. We have two students in the medical school, two gentlemen in the University here preparing to enter next year—and I have thought probably it might be the best thing, when we are too old, there would be somebody to take our place. The county told me to tell the society that at the present time we have plenty of doctors, which is a fact. We can make it well in the summer time. During the winter our roads are so bad we cannot get there all the time. For myself, I hate to see the standard of education lowered and our colleges in such shape that our young men receiving a diploma from a Kentucky school could not use it in other states. For myself, I would not want a diploma I could not use elsewhere if I took a notion to change my habitation. I think it best for the medical profession and for the best interests of the people that we hold the standard what it is, that we pray our Representatives and Senators to give us better roads and better facilities in the country, and we will better conditions.''

SECRETARY: ''A telegram received from McCracken County states that county is in favor of doing what the crowd thinks is best.''

O. F. HUME, Madison County: ''At a meeting of the Madison County Medical Society on last Thursday night I was instructed to favor any plan this body might formulate to make the inducements for the proper class of medical students greater to enter the schools, but to oppose a plan of lowering the standards of the present medical education. At the present time there are thirty-six men in our county society, all of whom do not do general practice, but all of whom are a real good bunch of fellows, and I am sure it was the unanimous opinion of the crowd, as this resolution was unaimously passed to oppose any plan of lowering the requirements at least for entrance into the medical school.''

OSCAR ALLEN, Ohio County: ''We have fifteen practitioners where twenty years ago there were twenty-six. In Butler County, adjoining Ohio, twenty years ago there were ten; now there are only four. In the rural community, I am the only one in that community and fifteen years ago there were five. There is no question but what there is a shortage of physicians in rural communities of the state. That is a condition that is confronting us and it must be solved. We do not believe in lowering the standard of medical education in order to provide physicians for the rural communities because we believe they are entitled to just as good doctors as any communities in the state. There has been a flocking of physicians to the larger towns and the cities, to places where they have good roads, and, in my opinion, the solution to this problem, like the suggestions already made, is the improvement of local conditions. Improve the roads. I believe that the Governor's message to the General Assembly the other day is one of the best messages that was ever given to any Assembly. I believe in the voting of the $50,000,000 road bond, and that it will do more good towards improving rural conditions than anything that we might suggest to this meeting. I believe that we need better doctors than we have. Just to illustrate: We have in our county some doctors who really are opposed to or do not believe in giving antitoxin. Now that sounds ridiculous, but I know of cases of diphtheria that died for the want of having proper medical care this last year. There has been a general epidemic of diphtheria over the state, and I do not believe there is any excuse, where the case is seen within twenty-four or thirty-six hours, I do not believe there is any excuse of the patient dying of diphtheria. But there were dozens of cases dying every day. What we need is better doctors. What we need is local hospitals in various counties of the state. We need county health officers above everything else. And that would be my suggestion—that the General Assembly pass a law to help the counties establish local hospitals and to employ a local health officer to educate the people and to furnish an endowment for the University of Louisville to allow free tuition to students of medicine who would locate in those communities where they are needed."

W. H. TAULBEE, Mason County: "Mason County's delegate was instructed to register protest against lowering the present standard. An alternative plan was suggested, which has practically been covered by other delegates. It is for the state to subsidize the Medical School of Kentucky and increase its capacity, doubling, if possible, its present capacity, and through state aid select suitable men who are desirous of pursuing the study of medicine and who are unable financially to complete the course, render them aid, and in return for such assistance have them agree with the State Board of Health to practice for at least five years in locations selected by the Board. To insure good faith and compliance with the terms of the contract his or her diploma shall be held in escrow until completion of the terms of the agreement."

CHAS. M. GOWER, Todd County: "Mr. President, I do not know where these reports are getting us. It doesn't seem they are getting very far, but Todd County has no shortage of doctors, and with our present use of automobiles doctors can do very much more work than they used to do. While we have a few less doctors than we had some years ago, still we have some that are not yet kept busy. It seems to me that the rural communities themselves have a great deal to do with the lack of doctors to help them out of their troubles. In Christian County, one of the wealthiest counties in the state, there is an excellent road that leads from Hopkinsville through the richest part of this county to Clarksville, Tenn. On this road there used to be three or four splendid doctors, they were starved out and had to move to the towns. The reason seems to be that the bigger the town you live in the better doctor you are. As a consequence when those that had a conveyance and who were able to remunerate a physician for his service employed one from one of the towns, leaving their own doctor to depend on those that were too poor or too worthless to remunerate anybody. No self-respecting physician will tolerate a thing of this kind, and unless the rural communities support a doctor better than in the past it matters not how many doctors you may have if he is worth his salt or has any ambition or any respect for himself he will not stay under conditions of this kind. And as for my county, we think we would regret very much to go back to where anybody regardless of qualifications, would be allowed to take up medicine, and have it as it was to a large extent years ago—when every crossroads had its doctor, who was many times disreputable in appearance, lacking in qualifications, was careless as to his morals, and who was looked upon as an object of charity, took his pay in barter—chickens, eggs, and things of that kind, neither do we believe the public wants a condition of this kind to exist again. We do not believe in our county that the crises is yet so serious that we should lower the standard. At least I think if it has to be done we should wait a while longer until the public in general and especially the rural communities shall learn better the true conditions and thereby to have more respect and appreciation for the country doctor."

J. W. NOLAN, Harlan: "I have resolutions adopted by the delegates of Harlan County Medical Society and the Bell County Medical Society. These societies were unanimous in condemning the idea of further reducing the standards of the medical education of the state. Their delegate was instructed to vote against them."

F. D. HASTON, Mercer County: "Mr. President, I have the credentials from the Secretary of the Mercer County Society in which he just gives a synopsis that he was not able to get to the Secretary of the State Board of Health in time for the meeting."

(The letter is attached here.)

Dr. A. T. McCormack, Sec'y.,
Ky. State Medical Society,
Lexington, Ky.

My Dear Doctor: This will introduce Dr. Fred D. Haston, of McAfee, Mercer County, Ky., our recently elected delegate duly empowered to act for the Mercer County Medical Society, and the local profession.

Our county has a population of 14,795, including the city of Harrodsburg, with a population of 3,765, and eleven doctors, active practitioners in the city, one a negro doctor, ten active practitioners well distributed throughout the county. There is an average population of 342 to every doctor in the city of Harrodsburg, and 704 to every doctor in the county. It does not seem to me we need any physicians in the town or county. I did not get your blanks in time to make a report to your office for the meeting tomorrow.

Dr. Haston will give you full details and fill blanks as may be desired. With the best of wishes for you and your father, I am,

Sincerely,

J. TOM PRICE, Secretary.

S. M. STEDMAN, Woodford County: The Woodford County Society is opposed to lowering the standard of medical education.

V. E. SIMPSON, Jefferson County: The Jefferson County Medical Society has not officially stated its position with regard to the bill relating to the Medical Practice Act now before the General Assembly of the state. However, it is, I think, the opinion of practically every delegate of the society present today that the bill should not pass, and I personally consider it dead.

We come from a county that pays two-fifths of the taxes of the state and in a medical way is equipping, practically, all of the doctors for the states needs. We are furnishing these physicians without a dollar's expense to the taxpayers. As has been said by some of the speakers the education of medical students has been accomplished by the members of the medical profession, and in Kentucky this is done by the profession of Louisville. The state does not contribute to the support of our medical school and it has never contributed one dollar toward the education of one of her sons for the medical profession. The University of Louisville, Medical Department, is a self-supporting institution. It can be self-supporting only because the members of the Louisville profession have voluntarily contributed what time they could and what talent they possess toward the education of our young men and women who elect to study medicine. I take it that the members of the profession of the state are willing that the Louisville profession shall continue its contribution in supplying the needs of the citizens of the state for doctors.

But we are opposed, unalterably, as a faculty, to the taking of any steps which will place the University of Louisville in the position of an outlaw in relation to its sister colleges in other states of the union. Not by legislative action can the University of Louisvivlle be made to abandon the standards of medical education now set up by the American Medical Association, through its council on medical education and by the Association of Medical Colleges of the United States. Until there is a common consent or action on the part of these organizations aided by the support of the leaders of professional thought can a rearrangement of medical education be had in this country. It is not possible to effect anything in this state alone from an educational standpoint, except by the establishment of a State Medical College. The cost of construction, the expen.e of maintenance and conduct would be staggering. Such a school would have no students other than those who were willing to practice always in this state; their diplomas would not be recognized by any state board. Such expense would entail a far greater burden on the state than would be the cost of paying a sufficient salary to enough doctors to supply the needs of a few communities.

It is possibly a waste of time to discuss any of the plans so far suggested; it is doubtful if any of them will be acted upon here or in the state legislature. But this is a fact: until life in a given community is made attractive and appealing to a man who has an education sufficient to fit him to be a doctor, no matter how many years he may spend in the medical college, that man will not go to live in that community. It makes little difference what laws are enacted, what the State Board may decide as a solution to the problem, life in a rural community must be made sufficiently attractive to induce a man in the profession to be willing to go there and live and work.

The situation in this state is not properly described by calling it a crisis. As Dr. Billings has said, "the conditions have grown up gradually." We have not reached the crest of a dearth of doctors in the rural community; it will be worse next year and the next. But it is not a crisis, nor is there need for a make-shift bit of legislation such as has been proposed. When this state makes every county in its confines accessible through good roads, and desirable as a place to rear one's children through good schools, it will have gone a long way toward making medical service available to all of its citizenry.

Common sense and calm reasoning are needed to make rural life appealing to the people and hence the doctor, or we get nowhere.

J. D. WHITEAKER, Morgan County: "In calling the roll Morgan County has conducted itself in such a way that we have not even gotten on the roll. If we have a medical society in my county it has escaped me. Some might think that I speak of it in this way as a boast, but I am particularly ashamed of it, because I realize that we have not kept in touch with the profession as we should have. I believe I will take a few minutes to explain that. I do not live in the county seat. I live eleven miles from the county seat. We have no way to get there usually except part of the way by rail, then walk or get some conveyance over to town, and if we do that we must hurry back to catch the train; and if we go horseback it takes about two and a half hours each way.

"But the thing I want to do is to ask you who are here as delegates from the various counties if you understood me in my talk in the forenoon when I tried to tell you what my position was. I have not attended medical socities nor have I attained very much knowledge in the profession, but I want to be a doctor. I want to be ethical if I know how to be. In a jocular way in Frankfort, since I happen to be down there—and I regard myself in the legislature as one who did happen or come in by chance—I am often asked by my associates which they shall call me—this last handle of Senator or Doctor, and I invariably say I prefer to be called Doctor, and most of them have adopted that title. But the point I wish to stress is that in the introduction of the bill, as I did introduce it, I sought to do what I am sure I have done—cause some little agitation and thought about a subject which I believe does require some thought. Like many of the more experienced and abler men in the profession, I do not believe there is such a crisis as we hear many people speak of. It is not so in my county, and I live in one of the mountain counties. But in thinking of it many of the doctors are aging considerably. I have believed always that as emergencies arise they will be met, and when the people in a community see that a doctor is going to be needed, I believe that community will, if it is self-respecting, take care of itself, and the thing I want to stress most is that my people in my section have not complained so much about the time or about the requirements, but many of them are not financially able to put the boys in school and keep them there, and I am not willing to believe that Kentucky will fail, sooner or later, and I hope not too late and I believe not too late, to make some provision so that the boy who is willing and capable may have aid along the financial side of it. Dr. Billings—of course, we all like to refer to him and quote him because he is authority you know and that goes very well to refer to him—but I do believe and I said it before I heard him say it, that there must be some classification. There must be some method of instruction that will put out ordinary doctors, and that the ones who are able to go and choose to go on, of course, will very readily and very easily go on, and in that way it will be easily overcome. I want to impress the delegates that I have not sought, as I have been informed by one of my friends that I am trying to upset this which the profession has been working up to for so long. If there is any section which needs relief, as a member of the legislature I will be glad to do what I can. But I do not want the medical profession of Kentucky to believe that I want to lower the standard and upset things. I would not have them believe it for the world. Do not believe, any of you, if you happen to see my name on the bill that I wanted it. We wanted it agitated, and with Dr. McCormack I was willing to do what I could to aid the agitation. Dr. McCormack has the good of the physician at heart, and has the reputation of not only professional Kentucky, but of the citizenship of Kentucky, the general people, as he should have. Thank you."

W. B. McCLURE, Lexington: "It is evident that after a laborious day's work the surface of this subject has not yet been scratched, and that it will require digging to work out the thing we are after.

"I move that a legislative committee of seven be appointed from this body with power to act and that they formulate a bill based upon the numerous suggestions made today, because they certainly have an opportunity to know the feelings of the profession throughout the state, and that bill be presented by this committee to the present State Legislature."

This motion was duly seconded. It was then amended to read that though the committee have power to act, that nothing in any way which it may do will either lower the standard of requirements or will by any means whatever look to the establishment of any school whose requirements will lower the standard, which amendment was accepted by Dr. McClure.

L. L. SOLOMON, Louisville: In seconding the amendment I have in mind the fact that it must be accepted as the consensus of opinion, invariably expressed during today's debate, that no one present, who represents medical openion is willing to see the teaching standard lowered at the University of Louisville. However, as physicians and doctors, we must not overlook another fact, namely, there exists in some counties of the state a real crisis, because of a shortage of doctors. We have listened to impassioned appeals from gentlemen who have appeared before us from the General Assembly, now in convention in Frankfort. These men have come to us, stating plainly the medical needs of the districts, which they serve. They are earnest men, whose constituents charge them to supply their respective communities with doctors. No one questions the accuracy of their statements and no one challenges their integrity. In one or two instances, there has been the veiled if not the actual threat that the Assembly will do something to relieve the situation unless the State Board of Health and the medical colleges find a relief measure. That the General Assembly possesses authority to do whatever it may, within reason, see fit no one denies. That it would be unwise for the Assembly to charter and establish a medical college, graduating doctors in medicine under a lower standard and licensing them to practice, in competition with men graduated under present standards is assured. I believe this gentleman said he did not speak in a threatening way.

In short, we have been told, that certain members of the Senate and the House are not content with medical conditions as they exist at home and that they demand a remedy. In reply to such demand I ask, is there not some way by which the State Board of Health of Kentucky can satisfy them? I have attentively listened to all the gentlemen who have preceded me. I have heard no suggestion of relief. We have simply said to them, we are opposed to any lowering of the standard of medical teaching. Having propounded the question, I ask permission to suggest a remedy, and while I have not had that time to devote to the subject which the importance of it demands, I believe the plan I have in mind is capable of execution. I believe it will meet the present emergency and wholly satisfy it. It has been suggested that it will require not less than one hundred doctors to meet the demand throughout the state for additional medical service. If such be the case, and, if one hundred men are required to satisfy certain counties urgently in need of assistance, I believe that the full number could be found in the larger cities—Louisville, Lexington, Covington, Newport, Paducah and elsewhere. Men may be found in these cities who are not making a living. They are thoroughly qualified to practice medicine. Provided the county in need will guarantee a living stipend for such doctor, the State Board of Health will locate him and make contract with him. The counties served will surely be willing to guarantee a reasonable living—say no less than $2,500 to $3,000 a year. For such sum I believe the services of a decent, qualified practitioner can be secured. When a crisis arises and medical men are required by the U. S. Public Health Service an appeal is issued by the government. It is agreed that a salary of $1,800 to $3,000 or $,4000 will be paid. Many excellent men are found willing to accept such stipend. Similarly corporations in need of physicians advertise for and secure a full quota. Instances have been recited in which women, suffering in travail, have lingered for as long as five days and then perished for the want of medical help to assist in their delivery. Such women have died in a most glorious cause. The ultimate aim and end of womanhood is motherhood. No wonder members of the House and the Senate are aroused and demand help at our hands. The death of such women amounts to martyrdom. It is a reflection on manhood and must not recur, except that the state assume full responsibility. A remedy is possible. We owe it to ourselves and we owe it to the lay public that a remedy be forthcoming. In our larger cities are many men unprofitably engaged in medical practice. Some of these doctors would go to the country. They must be guaranteed, as the workman says, a living wage. The county will agree to such guarantee. Whatever sum the doctor earns from his practice will be charged against the amount guaranteed by the county. In this wise, it may be reasonably assumed that the county, in some instances, would have very little if any deficit to meet. Will the county enter into such agreement with the doctor, assuming that the State Board of Health secures his services? I believe it will. I suggest this as a solution of the present emergency. Finally let us make the University of Louisville the medical department of the University of Kentucky. Instead of chartering a new medical school, as has been intimated this morning, an unnecessary and very expensive procedure, let a very much smaller amount of money be annually appropriated for the support of the medical school. Let the state pay for the medical education of men from the counties, now short of physicians, afterwards requiring the State Board of Health to license such men to practice for a period of not less than five years, after their graduation, only in the county from which they originated. This plan is workable and will settle the question of medical service for all time.

OSCAR ALLEN, Cromewll: 'I would suggest that there be appointed on this committee an equal number of practitioners from the country and city or larger towns, because those in the rural community are more familiar with the conditions."

PEYTON LIGON, Henderson: "I feel I should not represent the Henderson County Medical Society without their having consideration, and I would be opposed to the motion on that account."

C. Z. AUD, Cecilian: "I have been practicing in the county fifty-four years. I know something about the country doctor and know something about the city doctor. You selected me to do some of your important work—you appointed me on the Board of Medical Education. There is not that emergency I hear so much about today. We are not in immediate danger such as you think. The men in the legislature have not done anything, and I question if they will. I know some of those men. They are the purest bred Kentuckians in Kentucky and they will listen to reason. They need more time than they will possible have at this meeting of the legislature to do anything that is grounded on Kentucky intelligence. There are four different parties interested in this. Those people who are crying in the rural communities for assistance. I assure you, as a country doctor, they are very limited. Then come these members of the various houses—the Senate and the House of Delegates. They have another interest, gentlemen, with all their purity, with all their patriotism—if they ever return to their places they will do it with votes, and I fear they might be influenced in order to get votes hereafter. Then there is the medical profession. We of the medical profession who have been real lovers of the profession—and I love the profession so that I have stayed in the country until I know that the country is the best place for a man who loves his profession and loves the people. If some of you will educate your boys, which you will do, there is not going to be a scarcity of medical students after this meeting. There will be more medical students than we can use after we can educate them. I am going home more enthusiastic than ever. We will make doctors out of our boys as we always have. There will be plenty of doctors in Kentucky. I want to tell you if you will educate your boys and send them out of the cities into the country they will get what you will be proud of all your life—they will get a good wife worth having. I don't mean they won't get one in the city, but they can't miss one in the country. Then you will have grandchildren you will be proud of."

J. A. STUCKY: Are you ready for the question on the amendment?

C. C. GARR, Lexington: "The motion under discussion as amended is that we appoint a committee with power to act, provided the standards are not lowered and that another school is not formed with lower standards. I do not see why a body from this meeting should not prolong this consultation and meet with them in Frankfort in the same spirit they have shown—and not give them the idea that the Medical Society is trying to put something over on the legislature. It is a thing that interests us all. I think a committee should be appointed to meet with the committee from the legislature, and the point is not to lower the standard but to do something that will meet the problem."

FRANK BILLINGS, Chicago: "As I understand things, as I have had conferences with Dr. Arthur McCormack and Dr. J. N. McCormack, I think you do not need any legislative action as far as your medical school is concerned, provided the medical profession of Kentucky is satisfied that the present standards are right. You do not need any legislation, unless I have misunderstood, if the State Board of Health or the licensing body want to give licenses to men at the end of their junior year, provided they pass a satisfactory examination. You do need legislation to increase medical facilities in the state, to improve rural conditions—it is not necessary to go into that. You as medical men have nothing to do with that fact that you should take leadership in it. Use moral force to force it. I do hope that whatever may be done in Kentucky that you will take the leadership, for the opportunity is here to say—change your medical curriculum, that you are going to make the product, a general qualified, resourceful, general practitioner. I think that is your duty. You don't need any legislative action in that. That is in your own hands. I don't believe your legislature would dare to pass any action contrary to that if you in your captcity would stand up and say no. Let us put the general practitioner back on the map. It has not been done in any state yet. I have been fighting for it in my own school, but I have so many specialists to fight that it is not done. You have a chance to do it here, because the medical profession will back you, and I think the Louisville school will endorse that kind of curriculum. If you do that, this meeting will be justified by a good piece of work."

W. B. McCLURE, Lexington: "The motion is that the chair appoint a legislative committee of seven with power to act. They can confer with legislative committees, medical committes or any other committees they see fit, but to formulate something out of the discussions here today."

The motion was put to a vote and was unanimously carried.

N. P. COLWELL, Chicago: "The hour is late and you have heard the subject pro and con, and it is hardly necessary for me to say anything. But I would like to say that it has been a liberal education to listen to the talks here today; furthermore, since listening to your Representatives and Senators who have spoken here I have no doubt that the Assembly of Kentucky will find the right solution of the problem in Kentucky.

"We all know there is a shortage of doctors in rural communities. It is not limited to Kentucky. It is all over the United States and in Canada. Massachusetts was referred to here—they have too low grade medical schools which will take in any student regardless of the education he has had. Nevertheless, that is one of the states with the greatest scarcity of rural community practitioners. We have another state—Arkansas—where the requirements for licenses are low, practically nil—if a physician cannot get in through one board he can go to another. Even that state is having a dearth of doctors in their rural communities, the same as Massachusetts and Kentucky, if not worse.

"So the solution is in some way to make the rural community such that the doctors can go there and make a living. If the doctor cannot make a living in a rural district all the lowering of standards will not keep him there. Another thing, if the people in the rural communities need a doctor they need as good a doctor as the people in the cities. We heard this morning of a certain case of obstetrics. The midwife could take care of only the normal cases. The case referred to, however, was an extreme case—one that a student of only three years in a medical college could not handle any more than a midwife. He might have some knowledge of asepsis and be able to care for normal cases, but he could not render skilled service in these extreme cases.

"I would like to say a word on another subject:

"Dr. Billings said you should have more endowment for your medical school. I would like to say that a part of that endowment, or an additional endowment, might be given for scholarships for your students from Kentucky who want to study medicine and become doctors, but who lack money. The cost of medical education has increased in the past twenty-five years, but all this cost has not been met by the student. Four-fifths of that cost has been paid either by state funds or private endowments. The fees from students pay just about one-fifth of the total cost, taking all colleges into consideration. Therefore all the cost does not come on the student. During the same time this cost has been increasing it is pleasing to know that throughout the United States the number of free scholarships and loan funds for deserving but needy students has been tremendously increased. I would suggest in addition to the other proposals made here that you make provision so that all worthy students who are capable and desire to do so can study medicine. In Scotland they have an arrangement even in the lower schools whereby a student who shows ability and wants to proceed is kept going. If he has not the funds some way is found to provide for his needs. There are several states in our country which have made arrangements for scholarships. For example, in Pennsylvania there are fifty scholarships for deserving students of the state. I would suggest that some similar arrangement be made in Kentucky. I am sure I will go back with a better understanding of the problems you have here to solve."

J. A. STUCKY, Lexington: "In appointing this committee I find it has been a little difficult to cover the entire state to make the committee available that will be able to do the most good in the way of helping the legislative committee. I ask your unanimous consent for the privilege of appointing one other as chairman of this committee of seven. I would suggest Dr. Hendon, of Louisville; Dr. Aud, of Cecilia; Dr. Stilley, of Benton; Dr. Kinnaird, of Lancaster; Dr. Estill, of Lexington; Dr. Price, of Salyersville; Dr. Hume, of Richmond, as the committee of seven. I would like the privilege of appointing Dr. David Barrow, of Lexington, as the chairman of this committee."

A motion was made that "the cordial thanks of this House of Delegates be tendered to Drs. Billings and Colwell for their kindness in coming here today and assisting us in our deliberations, and that the same thanks be tendered to the Senators and Representatives who have taken their time to come here and confer with us in an atempt to solve the problem we have here in Kentucky."

FRANK BILLINGS, Chicago: "I do not feel that I deserve any vote of thanks. I have in return to thank you for the opportunity today to talk to you."

Meeting adjourned.

SCIENTIFIC EDITORIALS

DIFFERENTIAL DIAGNOSIS OF ACUTE ABDOMINAL PAIN.

In the differential diagnosis of acute abdominal pain, the first and most important factor is a careful anamnestic and clinical examination, allowing the patient to describe in his or her language every incident connected with the present illness.

According to Treves, there are certain primary symptoms common to all acute intra-abdominal disorders, in which a sudden and violent impression is made upon the great nerve centers. These symptoms consist of intense pain, varying degrees of collapse, and more or less vomiting. At the outset such conditions as appendicitis, renal and gallstone colic, twisting of the pedicle of an ovarian cyst, torsion of a movable kidney, certain gastro-intesinal disorders, general peritonitis, intesinal obstruction, and acute thoracic affections (especially in children) have been confused one with the other.

Appendicitis is the most frequent surgical disease encountered in abdominal surgery, and in typical cases one of the easiest diagnosed. However, appendicitis, whether typical or atypical, must be differentiated from other intra-abodimanl pathology, and the symptoms present are oftentimes misleading.

Intestinal colic, when chiefly affecting the appendiceal region, may in the beginning simulate appendicitis, but is distinguished therefrom by entire absence of objective signs.

In severe types of gastritis the attack may begin with a chill, fever, diarrhea and vomiting, but the absence of symptoms referable to the right iliac region with general freedom from tenderness and rigidity, are sufficient to put the examiner on his guard.

Acute cholecysitis begins with severe paroxysmal pain situated most commonly in the right abdomen or in the liver region, but is frequently noted in the epigastrium, and rarely in the ileo-cecal region. Nausea, vomiting, rise in temperature and pulse-rate, abdominal distension, rigidity quickly follow, and general tenderness becomes localized.

In hepatic colic, due to the calculi into the ductus cysticus or the ductus communis choledochus, the attack begin suddenly with agonizing pain, afterward associated with rigors, fever and abdominal rigidity. As a rule pain is located in the right hypochondrium and epigastrium, and radiates toward the scapula. In appendicitis pain usually extends toward the umbilicus and also downward in the right iliac fossa.

In renal colic the patient is suddenly seized with pain of agonizing character, having its origin in the lumbar region, either anteriorly or posteriorly, following the course of the ureter, passing into the testes, downward along the inner side of the thighs, and is sometimes referred to the glans penis. Such an attack may last a few minutes or several hours, ceasing as the calculus enters the urinary bladder. Impacted renal calculi may also cause excruciating pain anteriorly or posteriorly, radiating downward along the ureters toward the inner thighs and testes.

In acute intestinal obstruction due to volvulus, strangulation, intussusception, strictures or foreign bodies, the onset is characterized by continuous severe abdominal pain, which becomes more and more intense, and is soon followed by vomiting first of the gastric contents, then bile, and later fecal material. The presence of obstipation and early collapse are most important diagnostic features. The early high leucocyte count with absence of fever and abdominal tenderness distinguish it from appendicitis. Later when peritonitis has supervened differentiation is impossible unless a clear history has been obtained of the onset of the attack.

In acute pancreatitis the onset is sudden, with deep-seated, violent, paroxysmal pain in the upper abdomen, followed by persistent vomiting, constipation and abdominal distension. The temperature is subnormal at first but gradually rises. Tenderness on pressure over left costal margin, profound prostration, which is often associated with marked cyanosis, history of alcoholism and also cholelithiasis, are important in the diagnosis. The presence of fat in the dejecta is conclusive evidence of pancreatic disease.

In thrombosis of the mesenteric artery pain is acute, the onset being sudden and violent. The abdominal pain is severe, accompanied by nausea and vomiting; hematemesis and diarrhea with melaena complete the picture of dynamic ileus which terminates in death within a few hours or days.

In acute torsion of the pedicle of an ovarian cyst the sudden onset of severe pain, which is often accompanied by nausea and vomiting, may closely simulate acute appendicitis. The chief differential feature is the character of the pain, which is more continous and diffuse than the colicky initial pain of appendicitis.

The diagnosis of ruptured tubal pregnancy is seldom difficult if an accurate account can be obtained of events prior to the attack as well as a clear description of its onset. The history of irregular menstruation, especially the statement that a period has been delayed a week or more, with subsequent slight irregular flow, is very suggestive of tubal pregnancy. The onset of the attack, with sudden agonizing pain followed immediately by fainting and marked pallor, is pathognomonic.

In acute salpingitis there is usually the history of a yellowish vaginal discharge associated with burning on micturition for a longer or shorter period before acute symptoms appeared. The local pain and tenderness are usually situated more deeply in the pelvis and inguinal regions than in appendicitis. On vaginal examination exquisite tenderness is elicited near the uterus.

In gastric crisis there are noted nausea, vomiting, paroxysmal pain, and slight change in the pulse, but no fever. In lead colic, likewise, there is absence of general or localized tenderness, no fever, with the presence of nausea and vomiting. Pressure and manipulation of the abdominal wall seem to afford relief rather than increase the severity of the paroxysms. In acute appendicitis and other inflammatory disorders pressure markedly increases the pain.

The differential blood count and its relation to the total leucocytosis, is a most valuable aid in the diagnosis and prognosis of surgical diseases of the abdomen. If the leucocytes number 14,000 or more, and the polymorphonuclears 70 per cent or more, early surgical intervention is indicated unless there are valid reasons to the contrary. Whereas, in certain intra-abdominal inflammatory lesions there may be a high leucocyte count (15,000 to 18,000), if the polymorphonuclears are below 68 per cent there is little danger in awaiting developments, as the beginning rise in polymorphonuclear percentage indicates that pus formation has begun.

In conclusion it is only fair to state that even with the exercise of the greatest possible care, diagnostic errors cannot be entirely eliminated when dealing with intra-abdominal patholology. Some of the "masters in surgery" have made such mistakes, and the statement has been made that the only possible way to accurately determine the character of the existing pathology, especially in atypical cases, is by inspection after the abdominal incision has been made.

Frank T. Fort.

ORIGINAL ARTICLES

EXTENSIVE INJURY TO URINARY BLADDER DURING OPERATION FOR UTERINE FIBROID.*

By Charles Farmer, Louisville.

This woman is thirty-five years of age. She was admitted to the Louisville City Hospital three weeks ago and was operated upon two weeks ago yesterday. She had a rather larger uterine fibroid than is usually seen nowadays. Since surgery has become more aggressive intra-abdominal tumors are ordinarily removed before they attain any considerable proportions. This was a tumor which extended upward beyond the umbilicus.

The only feature of unusual interest about the case was a complication which arose during the operation. The tumor was densely adherent to the adjacent tissues, the small intestine, large intestine, and also the anterior parietal peritoneum about half way to the umbilicus. In removing the fibroid the urinary bladder was extensively damaged. The topography of the parts was so distorted and obscured by adhesions that the accident seemed unavoidable. I suppose the fundus of the bladder was torn two-thirds of the way across. It was one of the most extensive injuries of the bladder wall that I have ever seen.

The rent in the vesical wall was closed by immediate suture and a retention catheter introduced which was allowed to remain in situ for eleven days. There was no urinary leakage at any time. The patient is now able to retain about six ounces of urine. She has to micturate once or twice during the night, but she says this was necessary even prior to the operation.

The condition appeared a little alarming at the time of operation, but fortunately the bladder wound healed primarily and the patient has made a satisfactory recovery. The abdominal wound has also healed and I think the patient will have no further trouble.

DISCUSSION:

Louis Frank: I have injured the urinary bladder, to my certain knowledge, in this same type of case on two occasions. Once many years ago in the days when the serra-noeudo was used, a portion of the fundus of the bladder was caught in the noeud and thus amputated. The woman had a urinary fistula which persisted for three or four weeks and then closed spontaneously. The second case was in the Louisville City Hospital five or six years ago, the bladder being injured during an operation for uterine fibroid in the clinic. After the tumor had been removed in completing the toilet we noticed a peculiar looking surface and upon investigation it was found that the bladder had been opened to the extent of four or five inches. The damage was repaired by immediate suture and a retention catheter introduced. The woman had slight urinary leakage for a week or two, but the fistula finally closed and she made a complete and permanent recovery. In operations for uterine fibroids it is well to bear in mind that the urinary bladder, when it is adherent to the uterus, may be damaged during the procedure even though the greatest care is exercised. Vesical wounds of this type should always be closed immediately and if a peritoneal covering can be secured over the damaged bladder such wounds generally close without difficulty.

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*Clinical Report before the Louisville Medico-Chirurgical Society

It is exceedingly difficult to keep bladder wounds open. We have just dismissed a private patient, a young man operated on for gunshot wound with two perforations of the urinary bladder besides several intestinal perforations. He was sent here with an opening in his bladder into which two or three fingers could be inserted. The patient was placed in bed, the external wound extended downward to the level of the lower portion of the bladder wound, adhesive strips were applied and the case treated the same as an ordinary cystotomy wound. The urinary sinus closed promptly and the external wound soon healed. A letter received today from the patient gives the information that he is perfectly well.

There is another type of injury to the urinary apparatus which I think happens, during operations for fibroid tumors, with much greater frequency than we have heretofore believed, and that is damage to the ureter particularly by ligating or clamping. I am of the opinion that this type of injury frequently occurs. Fortunately, however, no trouble ensues unless both ureters are ligated or clamped, then, of course, the patient would get absolute urinary suppression, but following the ligation of one ureter there may be no symptoms to indicate that such an accident has occurred. Most individuals experience more or less pain in the back for a variable length of time following operations, and for that reason injury to the ureter is usually overlooked or unsuspected. Moreover, the primary symptom of pain from over-distension of the kidney capsule is not of such character or sufficient in severity to call especial attention thereto, the blood pressure is equalized by the urinary secretions and the kidney goes out of commission. I am sure this is an accident which happens more frequently than we may think, and when the injury is confined to one side we are never made aware of it unless the ligature slips or is absorbed too early. Under such circumstances urinary excretion is re-established in that kidney with the production of a fistula. It is well to bear in mind that the excretion of urine from the kidney is retarded after operations of this character, and distension of the kidney capsule is so gradual that the patient does not suffer a great amount of pain.

Many cases have been reported where ureteral injury was discovered and repaired before completion of the operation. There are on record cases where both ureters have been ligated; decapsulation of the kidney and pyelotomy have been done with later re-establishment of ureteral continuity. Urinary fistula from ureteral injury have followed vaginal and also abdominal hysterectomy. Where the ureter is merely included in the ligature after the latter separates function may be re-established and the fistula close spontaneously. However, this fortunate outcome is not to be anticipated in the majority of instances. Where the ureter is extensively damaged it has been the practice of some surgeons to merely ligate the proximal ureteral stump with a non-absorable material and thus put the kidney out of commission rather than attempt nephrectomy, it having been demonstrated primarily that the individual had two functioning kidneys.

Charles Farmer (closing): This is the first time I have ever injured the bladder during the performance of a surgical operation, but I am sure Dr. Frank is correct that accident to the ureter has happened more frequently than we think. The patient recovers and we know nothing about the injury. Back pressure will destroy the kidney and the patient experiences no further trouble.

I recall having assisted L. S. McMurtry in removing a large tubo-ovarian abscess several years ago; in separating the peritoneal adhesions the ureter was torn entirely across. It was purely an accident which might happen to anyone. The damage was repaired according to the Van Hook method and the patient made a perfect recovery.

BOOK REVIEW

Psychoanalysis: Its Theories and Practical Application.—By A. A. Brill, Ph.B., M.D. Lecturer on Psychoanalysis and Abnormal Psychology, New York University. Third Edition, thoroughly revised. Octavo of 648 pages. Philadelphia and London. W. B. Saunders Company, 1922. Cloth, $5.00 net.

In this edition have been added new chapters on masturbation, paraphrenia, and hemosexuality. The entire book has virtually been rewitten, necessitating its resetting.

PARALYSIS OF LEG FOLLOWING LABOR: CASE REPORT.*

By Frank C. Simpson, Louisville.

Mrs. N., aged thirty-eight, primipara, was delivered of a normal child November 17, 1921. On account of the head not rotating, after waiting three or four hours, forceps were applied, the head was rotated with very little force, and the delivery completed. The head was small and was brought downward with little traction; delivery was completed within a few minutes without any damage to the perineum.

When I visited the patient about four hours later she complained that she could not use her right foot. On examination it was found she was unable to extend her foot and there was paralysis of the anterior group of muscles extending from the knee to the toe. My first thought was that this was due to pressure of the stirrup strap and tried to encourage the patient by telling her she would be all right in a few days. The next day after delivery (November 18th) she complained of severe pain extending from the hip to the knee. This caused me to change my diagnosis to pressure in the pelvic cavity which involved a branch of the sciatic nerve. The position was R. O. P. and I believe there was pressure from the head failing to rotate.

The patient had a temperature of 100° F. for three or four days, but no importance was attached to this, as slight temperature elevations frequently occur after normal delivery.

Pain in the upper leg persisted until December 1st, then she began to suffer intense pain in the foot which continued for more than a month. During the last week pain has been less severe and she has been able to move the leg and foot.

Dr. J. E. Hays and Dr. John J. Moren saw the patient with me and I would be glad to hear what they have to say on the subject. I believe the occurrence of such an accident is rare. I have been in the practice of medicine for many years and it is my first experience with such an accident. So far as I am able to ascertain there is nothing in the literature on the subject.

Today (January 13, 1922) the patient is fairly comfortable and is on the road to recovery.

DISCUSSION:

John J. Moren: The history of this case as obtained from the patient on December 23, 1921, is as follows:

"While going from the delivery room, right foot seemed to go to sleep. Later the same day cramping of leg appeared. This lasted about ten days or two weeks, when the pain subsided to a large extent, and the foot began to pain—described as cramping in the arch, and the toes seemed to draw back toward heel. In trying to use the foot by putting weight on it, felt like foot would burst. Touching the foot caused pain like hot needles. Pain in right hip joint appeared on the first day after delivery.

She complained of some pain in lumbar region, but there were no symptoms referred to the left side. No disturbance of bladder or rectal functions. There is typical foot drop on right side. Examination showed loss of reflexes of right knee, tendo-achilles and plantar. Left side normal. There was a diminution of sensation confined to the back, outer and front of the lower leg, including bottom of foot. Sensation was retained on the inner side down to the arch of the foot. No disturbance of sensation above knee. The feet and lower legs were swollen, but there was no indication of defective circulation. She says her feet swelled often even before pregnancy. The electric test showed typical reaction of degeneration in muscles below knee.

With the acute onset of such symptoms we would suspect a hemorrhage into the cord, cordequinia, injury or involvement of the sciatic nerve. In view of the fact that the symptoms are wholly unilateral, without bladder or rectal symptoms, and the absence of sensory symptoms above the knee, cord lesions can be eliminated. The pain, paralysis, anesthesia, loss of reflexes and reaction of degeneration localizes the trouble in the sciatic nerve proper.

As to the location of this involvement: I do not believe that it occurred from the stirrups or any position of the limbs during delivery which would cause a stretching of the nerve, as the limb is usually in a flexed position. On account of the involvement of the knee reflex, and extension of pain to the thigh and hip, it would be my opinion that the lesion occurred within the pelvic cavity. The severe pain would lead me to believe that it was trauma, and possibly a hemorrhage into the sheath of the nerve. I do not believe that infection or any other condition could account for the symptoms in this case. This is the third case that I have seen following pregnancy, and the others presented a more or less similar syndrome. Neurological literature speaks of sciatic paralysis following childbirth.

Progress: After ten days' electrical treatment the knee jerk returned, and sensation improved, except over the lateral surface of the lower leg. The pain has greatly diminished, and at this date, January 24, 1922, she is able to make a distinct flexer motion of ankle and movement of the toes, altogether a most satisfactory improvement. This leads me to believe that the trauma with hemorrhage into the sheath possibly explains her symptoms.

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*Read before the Louisville Medico Chirurgical Society.

W. E. Gardner: It is difficult to conceive how there could have been sufficient pressure within the pelvis in this case during delivery to produce a pressure neuritis, although this might be possible owing to the posterior position of the child's head. The question is whether pressure was exerted from within the pelvis or peripherally. I understand both sensory and motor symptoms were manifest and this is true in all cases of neuritis, whether toxic or traumatic. As pain has practically disappeared and motion has returned there is no question but the result will be good.

I am inclined to believe that, inasmuch as the patient had little or no impairment in movement of the thigh, but only of the foot and lower leg, that the cause was some sort of peripheral pressure. Of course, it is possible that only certain fibers of the sacral plexus that form the sciatic nerve were impigned upon by pressure within the pelvis, as stated by Dr. Simpson, with production of the motor and sensory symptoms noted in the leg and foot, and this through the anterior tibial branch.

The case is certainly interesting. I have never seen one just like it in my experience.

Henry Enos Tuley: I have never seen nor have I read of a case just like the one reported by Dr. Simpson. I rather question the statement that in normal cases there is ever elevation of temperature after delivery. I do not believe a febrile puerperium is normal.

I would look upon the cause of the symptoms in this case as an infection. I do not see how it would be possible even in the second stage of labor with the head in an abnormal position to have sufficient pressure to produce the symptoms described. I do not believe the application of forceps and rotation of the head had anything to do with it. I would rather look upon the cause as an infection, probably not postpartum as the symptoms appeared so early.

L. W. Frank: In regard to the position of the foot during labor: Where the feet are placed in the ordinary position in stirrups as is done in perineal section and many other operations, I do not understand how any undue pressure can be exerted. In some instances the patient complains of slight pain and stiffness occasioned by the unusual position, but I have never seen any paralysis of the sciatic or anterior tibial resulting from position of the leg or foot.

In the case reported I believe the pressure was internal rather than peripheral.

Louis Frank: I hardly think pressure from stirrups such as ordinarily used to hold the feet and legs in position would be sufficient to cause symptoms such as described by Dr. Simpson. I hardly think Dr. Tuley's contention is correct, because toxic neuritis does not develop suddenly. I also believe that it is not unusual for a woman to have elevation of temperature for a short time after normal delivery. I am sure that I saw, during the time I practiced obstetrics, women who had been in prolonged labors have elevation of temperature lasting a short time. It was not toxic and not septic in character, but due to exhaustion which may under any circumstance increase bodily temperature.

Pressure paralysis is something which should be guarded against. I have had the opportunity of seeing a case where pressure exerted on the musculo-spiral nerve for a short time caused paralysis lasting for several days. I have in mind another individual whose arm was inadvertently allowed to hang over the edge of the table during an operation and paralysis developed as a result which persisted more than a year; in fact, the patient has not yet completely recovered.

In obstetrical, gynecological and surgical work where the patient is given a general anesthetic, we should be particularly careful not to overstretch the nerve. This may be easily done with the patient under the influence of an anesthetic without our being aware of it. It seems to me in the case reported some of the nerve fibers may have been over-stretched by the position in which the patient was placed, and this may account for the symptoms described. I know sometimes in getting patients off the operating table the neck and shoulders are put on the stretch, and I have seen paralysis lasting for a short time from over-stretching of the brachial plexus.

Charles Farmer: In the case reported by Dr. Simpson I think there must have been injury to the sciatic nerve from some cause probably over-stretching as stated by Dr. Frank. I do not believe the symptoms were due to infection. I have seen many cases of puerperal infection in the Louisville City Hospital and have never seen a condition of this kind resulting. I believe the cause was trauma and not infection.

John W. Moore: I am inclined to believe, with Dr. Tuley, that the cause of the symptoms in the case reported by Dr. Simpson was infection rather than trauma. It looks to me like a clear case of peripheral neuritis. As there were both sensory and motor disturbances I believe the cause was an infection. Probably childbirth had absolutely nothing to do with it.

J. R. Morrison: If I understood Dr. Simpson correctly, he said the patient did not develop fever until twenty-four hours after delivery. It seems to me if infection had anything to do with production of the symptoms necessarily the infection would have to be present some time before delivery, otherwise it could not have affected the nerve. In other words, infection would have to be active for some time before the nerve could be affected.

J. G. Sherrill: It seems to me there is considerable room for debate here. In the first place, if the trouble were toxic neuritis in the case reported there must have been something to cause the toxemia prior to the labor. Second, in toxic neuritis or neuritis due to infection the probability is the trouble would be bilateral not unilateral. Third, in the case reported there were both sensory and motor symptoms which would argue against toxic neuritis.

I believe the cause of the trouble was pressure, the case being analogous to paralysis of the arm from pressure on the musculo-spiral nerve, due to the arm hanging over the side of the operating table. Such cases are not infrequent, the paralysis lasting from minutes to several days. Four or five minutes' pressure is often sufficient to cause such symptoms. Slight traumatism to the sciatic nerve may cause the exudation of a few drops of blood from the artery to the nerve and thus cause paralysis. The same result may follow pressure on the sciatic nerve by allowing the leg and foot to hang over the edge of the table.

I am inclined to think in this case the cause of the symptoms was traumatism to the nerve in the pelvis. The remarkable feature is that more women do not suffer lesions of this kind during labor.

I agree with Dr. Frank that it is not unusual for a woman to have elevation of temperature following labor without infection.

Frank C. Simpson (closing): I cannot help believing that the cause of the trouble in the case I have reported was traumatic. The woman was in labor several hours without making any progress so I decided to apply forceps and rotate the head, thus completing the delivery. Little traction was required as the child was rather small weighing only seven pounds.

I cannot understand how the cause of the trouble could have been toxic because it developed so promptly. Less than an hour after being returned to bed the woman complained that she could not move her foot. When I saw her four hours later she was unable to change the position of her foot in bed.

The patient is now able to walk on her foot, but, of course, she walks with a limp. Dr. Moren reports there has been improvement in sensation and also in muscular action.

The women had a normal pregnancy and went into labor in splendid condition. Labor was prolonged because of premature rupture of the membranes. This, of course, delayed cervical dilatation. After dilatation had been secured the head made no progress and forceps were applied.

I am still of the opinion that the trouble was due to pressure on some nerve in the pelvic cavity.

LIGATION OPERATIONS IN TREATMENT OF DISEASES OF THE THYROID GLAND.*

By W. I. Hume, Louisville.

The ligation of the poles of the hyperfunctioning thyroid gland to reduce its effect on the human economy is not new. The operation is being performed many thousands of times each year. However, the writer, in his association with men who refer such cases for treatment and in some instances with men who do surgery, has noticed that some confusion exists as to the indications for the procedure and as to the results to be expected. One operator called the method "purely meddlesome"; others use it chiefly as a test of the patient's ability to withstand operative treatment; then there are many who do this operation as a preliminary treatment with the expectation of temporary improvement in the patient's condition and with radical resection in view. This paper is a result of the author's efforts to evaluate the operation for himself, and to place it where it belongs in the field of thyroid surgery. Nowhere does sound judgment, based on experience, as to when and what and how much to do, count for more than in surgery of the thyroid. My personal series of cases is not imposing. Five years' work with J. R. Wathen, who furnished abundant material and generously aided me in every possible way in work with and study of goiter patients has, however, enabled me to observe a considerable number of cases. To him my thanks are due. I have kept note of some patients now for eight years.

It may be well to state at the outset that resection of a sufficient part of the thyroid gland, either primarily or after appropriate preliminary treatment, is generally and properly considered the treatment of choice in thyrotoxic goiter. A larger percentage of cures are obtained by this method than by any other. Yet many patients come for operation late and in a condition of severe or even extreme intoxication; radical operation in such condition offers an almost prohibitive mortality. Such situations impel us to less radical treatment or to divide into stages appropriate to the case in hand. Here lies the chief indication for ligation.

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*Read before the Jefferson County Medical Society.

To properly handle goiter cases it is absolutely essential that one have in mind a definite classification. Each group presents its own peculiar difficulties and require different management. No attempt at elaborate classification will be made here, however. In considering indications for the ligation operation we may first divide these cases into toxic and nontoxic; the toxic further into the exophthalmic group and adenoma with hyperthyroidism. It is well. too, to grade the intoxication as mild, moderate, marked and severe.

It will be generally agreed, I believe, that ligation has no place in the treatment of simple goitre. It is not needed. The mortality here is due to accidents of surgery-hemorrhage, embolism, etc. It is rarely of benefit in adenoma with hyperthyroidism even in severe cases (Boothby, Jour. A. M. A., 7-23-21), though, purely as a test, it may serve here equally as well as in the exophthalmic type. Thus we find the main indication for this procedure in the exophthalmic group and chiefly in severe cases where not only is a test desired, but where some actual improvement in the patient's condition is essential to comparative safety in resection later. This practically limits the method to one group—the exophthalmic—and to the severe cases—the doubtful cases—in that group. I believe surgical practice in our best clinics confirms the foregoing limitation of indications. For example a recent Mayo Hospital report (1916) shows 388 ligations done and all but twelve in the exophthalmic group. Cases of adenoma showing improvement after ligation are probably of the mixed type occasionally seen, i. e., hyperplastic goitre in which the adenomatous growths are incidental only. It is my belief, in view of the well known fact that a few true exophthalmics recover spontaneously, and based on personal observation of several severe cases which after ligation have remained well for several years, that a certain percentage of early, mild cases could be permanently relieved by single or bipolar ligation. Of course, we rarely see them early, but we should. The future will, in all probability, show few of such extreme cases as we now sometimes see.

Chas. H. Frazier (Annals Surg., 8-20) in speaking of moderate and severe cases of toxic goitre declares that the question of beginning treatment by ligation permits of no discussion. He ligates when there exists the slightest doubt as to the propriety of resection, and as a rule when the basal metabolic rate is over sixty. He says the results are striking, but reach a maximum in two or three months. Chas. M. Mayo (Keene's Surg., Vol 8), in writing of late cases of exophthalmics states that in many cases ligation of one or both superior poles is of great benefit; that a gain of twenty-two pounds may be expected in three months following such treatment, but this improvement can be expected to last at most no longer than two years.

Under the exophthalmic goitre heading, 388 ligations were reported from the Mayo Clinic in 1916; the same year 434 thyroidectomes were done for the same condition. According to E. S. Judd, only one in three cases present themselves for operation at a time in the course of the disease to warrant dispensing with preliminary ligation (Annals Surg., 8-20). Dr. Crile reported a personal series of 821 ligations and 2,771 thyroidectomes. J. R. Wathen tells me that whereas he formerly practiced ligation in one of every five or six cases of exophthalmic goitre, the ratio in his later work is approximately two preliminary ligations to one primary resection. In my own experience at least some improvement has been noted after successful ligation in every properly selected case and as before remarked, several patients—one personal case of four years ago—declare they are well and refuse further treatment. Such results may be urged as an objection to this method of treatment since we know the results are, as a rule, temporary. Along with those who report themselves cured, by medicinal, manipulative and other treatments, these may through a false sense of security defer radical operation until too late. Wallace Terry says that he operated on two patients after a free interval of nineteen years. (Annals Surg., 8-20).

Ligation purely as a test of the patient's ability to withstand radical operation, is, I believe, seldom justifiable. Every crisis these people go through adds something to their disability. In proper cases when real benefit to the patient can confidently be expected the test comes incidentally, of course, and is of value. Yet this test is often misleading, as numerous cases have been reported the patients died following resection after having had successful single or double ligations eight patients, one single ligation; five patients, two single ligations, and one patient, a double ligation. (Berkman-St. Paul Med. Jour. Oct., 1916.) The basal metabolic rate plus observation of the clinical picture presented for a week or ten days, should enable one to determine the patient's fiitness for thyroidectomy.

The main usefulness of this procedure is, of course, as a preliminary treatment to resection in exophthalmic goitre. Here in late cases we may get sufficient amelioration of the patient's symptoms to permit of radical operation in an otherwise practically inoperable case. Evidence is accumulating tending to show that the too sudden withdrawal of thyroid activity may greatly endanger the patient. (Crile Surg. Gyn. and Obst., 5-21.) This may have considerable to do with our mortality. The fact that graded operations, i. e., one superior pole ligation, later the second, and finally, depending on the patient's condition, a partial thyroidectomy are the safest, strongly supports the idea. Dr. Crile declared that in severe cases even if the gland could be "wished out" the sudden break in the activity of the thyroid might be fatal. Very toxic cases must be handled with extreme caution. It is well to remember that any operative intervention, ligation, injection of boiling water (Porter) and even x-ray treatment, each have shown fatalities and may result in disaster. This is particularly true when practiced on patients at or approaching the peak in a wave of hyperthyrodism. The period of remission of symptoms should be selected when possible as the time for ligations as well as for radical operation. Recognition of the fact that the disease progresses by exacerbations and remissions and realization of the importance of preparation of the patient by rest, appropriate drugs and minor operative procedures have done a great deal toward lessening the mortality in a class of cases once considered by the great Kocher as outside the pale of surgery.

In this connection I want to say that, to me, it seems unwise to fix a definite date upon which to do the resection after ligation is done. I am convinced that patients closely observed will show wide variations as to the time of maximum improvement. Let it depend on improvement and watch patient closely.

Rest in bed and the administration of strophanthus or digitalis may be necessary before ligation. But in the preparation of the patients for operation, no unusual purging or dieting, in fact, no unusual activities of any sort about the patient are permitted. A sufficient dose of morphine to quiet the patient is given. The skin and tissues about the pole to be ligated are infiltrated with novocaine-adrenalin solution and the incision, placed usually in a crease in the skin, is made with a sharp knife. Then, mainly by blunt dissection the pole is exposed and doubly ligated; one ligature is placed about one-half inch from the gland and the second well downward on the gland itself. Linen ligatures are used. It is important to see exactly what is being caught in the ligature, so a clean dissection and a good exposure are necessary. The skin is closed with clips or a subcuticular stitch and very little scarring results. If the surroundings are such that the excitement attending an operation can be reduced to the minimum, we believe local anaesthesia best suited to these cases. All our ligations have been done under local anaesthesia. We have had no fatalities.

In conclusion, my experience has led me to believe in treatment of late exophthalmic cases, it is of great importance to reduce thyroid activity by any means at our command before attempting radical operation. Ligation of the superior poles of the gland, though usually but temporary in effect and not without a mortality of its own, is at present, perhaps, our safest means of effecting this reduction.

DISCUSSION:

George A. Hendon: I think Dr. Hume's statement gives a very valuable and important emphasis to a procedure that has brought many apparently incurable patients with goiter into position for relief.

It is a procedure to which there is no contraindication and has the recommendation that it will never do any harm. Whenever the surgeon is called upon to operate under circumstances such as those cited by Dr. Hume, and feels apprehensive about the patient's ability to withstand radical operation or resection of a lobe of the thyroid, then it is wise to resort to preliminary ligation. The operation of ligation is simple, practically harmless, and is a valuable safeguard. In extreme cases under preliminary ligation the patient may later become a reasonably safe surgical risk. As said before, I do not see any contraindication to the use of preliminary ligation. It can be done under local anesthesia; it can be completed within a few minutes; it can be used on one side at one seance and on the other side at a later date if so desired. It commends itself by its simplicity and by its efficiency, and is one of the most important minor surgical procedures of which I have knowledge.

I have heard the statement made here that ligation was equally as dangerous and difficult as resection of the lobe. I do not see how that can possibly be true, because we are aware that resection of the thyroid in goiter is one of the most trying ordeals that the surgeon has to undergo. I do not believe any amount of experience will ever give to the surgeon a feeling of absolute security and self-confidence when he is operating upon a goiter. These cases are extremely dangerous to deal with from the standpoint of hemorrhage and also because the majority of the patients are most fragile, so to speak. Vital resistance is reduced by toxic absorption, the patient is usually a bad risk, and it behooves every surgeon to avail himself of the fortification that comes from preliminary polar ligation. I think the method ought to be universally adopted.

L. W. Frank: I agree with the essayist that polar ligation has its greatest field of usefulness in the exophthalmic type of goiter. I cannot agree, however, with Dr. Hendon that it is an operation entirely devoid of danger. During my hospital service in the East the only deaths I saw were in patients subjected to polar ligation; in other words, the patients were too ill for radical operation, but were considered safe for unipolar ligation. These were the patients who died; they were unsafe subjects for any operative procedure. After a thorough investigation if it is decided that the patient is too ill to undergo anything but unipolar ligation, I think it would be better to abandon any operation for a while and treat the patient medically. When the patient is in safe condition for operation then I believe the proper procedure is lobectomy. Many patients who are very toxic may react favorably to the anesthetic and the pulse rate lessen. In such I think lobectomy is as safe a procedure as ligation. My objection to unipolar ligation is that it is only a temporary measure, and one or two other operations have to be performed before the patient is completely relieved.

In treating goiter patients our custom at present is to take them to the operating room with the idea of doing a radical operation primarily. We use gas-oxygen as the anesthetic in all these cases. When they are under the influence of the anesthetic if the pulse recedes to 100 or even 110 they are regarded as safe risks for radical operation. On the other hand, if the pulse rises or remains at a high level while the incision is being made through the skin, all that is necessary is to extend the incision through the muscular structure and do a polar ligation which only requires three or four minutes. This is my idea of the best method of handling these cases.

There is one thing I have observed in making the so-called adrenalin test., i. e., that the way the patient responds to the adrenalin test is an almost certain index as to the way she will respond to the operation. If there is a severe reaction following the adrenalin test the indications are there will be a severe post-operative reaction and the operation had better be postponed. Where the patient has a delayed adrenalin reaction she will have a delayed post-operative reaction, etc. We have observed this many times and have planned our operative procedures accordingly. Of course, our experience has not yet extended over a sufficient length of time to enable us to draw any conclusions. I believe, however, the adrenalin test is the most valuable procedure we have in this type of cases. Every surgeon who has been doing this kind of work has observed the variation in reaction from adrenalin and from operation. Of course, it is of advantage to know how the patient is going to respond to the operation and this information is afforded by the adrenalin test. We do not have to resort to the ligation test to determine whether the patient is a safe risk. This can be done beforehand by the adrenalin test and the operative procedure can be planned accordingly.

H. N. Leavell: In dealing with goiter in any way whatsoever it must be remembered that we are virtually "dealing with a powder can." It matters not whether one does a unipolar or bipolar ligation or resection of a lobe of the thyroid, it can never be determined in advance just what will happen after the operation. The manipulation incident to the operation it seems in many instances is sufficient to bring about intense thyrotoxicosis and the patient subsequently succumbs.

I had the opportunity of observing many cases of this type in the clinic of Dr. Rodman, of Philadelphia, Pa., where the patient was apparently a favorable operative risk and the thyroid was removed with a sufficient margin of safety, but much to our surprise six or eight hours later the patient's pulse rate rose to beyond the counting point and within an hour or two death occurred. Remember that in the preliminary examination the patient was rated as a good surgical risk, her metabolic function was altogether propitious, there was no undue manipulation of the tissues during the operation, there was only slight hemorrhage, the operative procedure was apparently ideal, yet the patient succumbed within twelve hours.

I believe the adrenalin test should be employed in all cases of goiter where any operative procedure is contemplated before anything else is done, even before ligation. Polar ligation is not without danger. Any procedure which entails manipulation of the thyroid tissues, no matter how slight it may be, on account of the nervous shock thus produced may precipitate increased gandular activity.

The question of pluriglandular therapy might well be considered in this connection. It is a very fertile field for investigation in relation to disease of the thyroid gland. It is astonishing what results sometimes accrue from pluriglandular therapy in this class of cases. We look upon the thyroid as the King of metabolic function so far as the ductless glands are concerned. We believe the thyroid secretions control all the others, but after all it is but a chain in the ductless gland metabolism and one of the chief features is for us to reduce the antiactivity of the thyroid gland. We do not know which one of the other glands is working in conjunction with the thyroid, whether it is the pituitary, the ovary or one of the other ductless glands. One ductless gland may be over-stimulating the thyroid, or it may be causing hypo-function. By administration of a small quantity of pituitary substance the thyroid often resumes its normal activity. It will also respond and resume normal activity after the hypodermic injection of adrenalin. We know the endocarine system is merely a chain, that one gland is dependent more or less upon the other, and yet all must work in harmony before normal metabolism can be maintained.

In hyperthyroidism to reduce thyroid activity by ligation means putting the gland partially at rest, and this may often balance the metabolism in relation to the ductless glands and the thyroid will give no further trouble for years. I have two or three such patients under observation in whom the disease has never progressed beyond the point where anything further had to be done than polar ligation. These patients were perfectly well and appear normal after an observation of several years, and their glandular activity not being increased they have hesitated, wisely, I think, about having the thyroid removed. It appears that if we can put this major gland at rest for a time and let the whole ductless glandular system harmonize the condition of the thyroid will improve. If we will pay more attention to the other ductless glands while we are treating the thyroid I think we will get better results. This applies to both medical and surgical therapy.

I do not believe polar ligation is altogether a very simple surgical procedure, at least one that is entirely devoid of danger. However, the operation is simple and should be adopted in every serious case where hyperthyroidism is so great that nothing else will promise the patient relief.

W. I. Hume (closing): In the matter of anesthesia: I am frank to admit that we have used only local anesthesia, and I believe it is decidedly the best procedure in these thyroid cases. As stated in my paper, we have never witnessed a death, nor even a near-death, following the ligation operation. I think the reaction is very much the same, except in degree, as following lobectomy, resection, or any other operation on the thyroid. After finishing my paper I noticed an article just out by Oschner in which he says that general anesthesia is more to be dreaded than the operative procedure in these cases. This may be a little radical, but is in line with my experience.

In the matter of doing ligation: A great deal depends on the amount of manipulation during the operation. Ligation properly done is absolutely under the eye, the artery is seen and easily ligated. This is accomplished through an incision about one and a half inches long over the pole selected, and the resulting scar is insignificant. The operation performed under novocaine and adrenalin should be painless and bloodless; the operator sees the artery and the ligatures are properly placed with the minimum amount of trauma to the gland. If a collar incision is made, as is sometimes advocated, a much wider dissection is necessary than by the method I have outlined and the risk is correspondingly greater.

As to the use of the adrenalin test suggested by Dr. Frank: While my experience with this test is limited, yet I believe it is of no value in diagnosis, but is certainly well worth trying as suggested.

I agree with Dr. Frank that in some thyroid cases the condition of the patient precludes any type of operation. And, of course, if ligation is performed under such circumstances death is likely to occur. The mortality reported from some of the large clinics was in very late toxic cases. The time for ligation should be selected just the same as it must be selected for radical operative intervention. If radical operation is performed when the patient is approaching the peak of the wave of intoxication death may be expected to occur in many instances. If ligation is undertaken at a similar period the patient is more apt to succumb than during a period of remission. Whatever operation may be selected it should be undertaken during the lowest period of remission to secure the best results.

I was glad to hear Dr. Leavell say he has several patients under observation who have remained well for several years after ligation. That has been my experience. Dr. Wathen has a number of patients who have remained well several years after ligation. Many of them were double ligations. This does not seem to be the experience of a number of operators who state that at most the effect will last only a year or two. Of course, it is reasonable to expect collateral circulation will be established and the gland may then resume over-activity. Just when this may occur in any given case is difficult to determine.

TWO CASES OF ECTOPIC GESTATION: ONE OF CHRONIC PYLORIC ULCER.*

By L. WALLACE FRANK, Louisville.

Case I.—This patient, a female, aged twenty, married two years, has had no pregnancies and no miscarriages. She was due to menstruate seven days before admission to the hospital, which was last Friday night, February 3, 1922. Her menses did not appear and six days later she had slight pain in the right lower abdominal quadrant, said she felt faint and began to menstruate.

She was admitted to the hospital at night and I saw her the following day. Examination of the pelvis showed decided tenderness in the right adnexal region with slight bogginess in the cul-de-sac. Her temperature was normal on admission, pulse 120. At my first visit her pulse was 88.

After completing the physical examination a blood count was made which showed leucocytes 12,000, erythrocytes 2,500,000, hemoglobin 50%. The patient looked much paler at that time than she does now. I made the diagnosis of right ectopic gestation.

The patient was taken to the operating room and a mid-line incision was made. The right oviduct was found ruptured just one-fourth of an inch from the uterus. The extruded product of conception was no larger than the end of the thumb, but the cavity was filled with unclotted blood; in fact, the quantity of blood was so great that the area was considerably obscured. Clamps were placed on the broad ligament to control hemorrhage and the blood removed from the abdomen. The right ovary and oviduct were removed. The vermiform appendix was not disturbed. I did not believe the patient's condition warranted removal of the left oviduct, although she had definite evidence of chronic salpingitis of the left side.

No untoward symptoms developed following the operation; the patient was allowed solid food at the end of three days; she now feels well and is normal in appearance. No blood examination has been made since operation.

Operation was performed one week ago and the patient still has slight bleeding from the uterus. I may say, also, that a day or two after the operation she had a mild epistaxis from what cause I do not know, but she says it was from "picking her nose."

Case II.—The second patient is a female, aged thirty-two, the mother of four children. She has had no miscarriages and says she has always been healthy. She menstruated normally two months before admission to the hospital. One month before admission her menses appeared at the proper time and with the onset of the flow she fainted. Two days afterward she had slight pain in the right lower abdomen. However, she was able to attend to her usual duties as housewife. Five days later she again had pain in the right lower quadrant, where it had been before, but did not faint. She remained in bed for a few days and then resumed her household affairs. Menstruation has continued for about one month, and during this time she has had several attacks of pain.

This patient was sent to the hospital by an excellent physician of Louisville with the tentative diagnosis of appendicitis. When admitted her blood count showed: Leucocytes, 14,000; erythrocytes, 3,800,000; hemoglobin, 65%. The woman having had four children the probability of infection was relatively slight.

Upon examination we found a large mass on the right side which was thought to be cystic; there was considerable bogginess in the cul-de-sac. While I could not make a positive diagnosis prior to operation, I thought it was either an ectopic gestation or a right ovarian cystoma with partially twisted pedicle.

Her temperature on admission was normal, pulse 120. She was admitted late in the afternoon and I saw her about six o'clock. Proctoclysis was used and the next morning her pulse was normal. She was operated upon the following day.

Upon opening the abdomen the diagnosis was evident. There was a blood clot just underneath the peritoneum one inch in thickness and extending well upward in the cavity. This clot was removed first. We then proceeded with the operation and removed a similar clot from beneath the omentum. When the pelvic cavity was reached hemorrhage began, the blood spurting in a steady stream from large vessels in the broad ligament. Right salpingo-oophorectomy was quickly completed. She left the table with a pulse of 150 and weak. Saline solution was given by infusion into a vein and also by proctoclysis. She finally rallied and made a perfect recovery, being dismissed from the hospital on the fourteenth day.

It will be noted that the patient is still anemic as might be expected. Four days after being dismissed from the hospital she developed a cough and now apparently has a mild influenzal infection.

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*Clinical report before the Louisville Medico-Chirurgical Society.

COMMENT.

The most interesting feature in regard to the second case is that the woman had an ectopic gestation typical in character with recurrence of symptoms. While she only fainted on one occasion, i. e., at the onset of menstruation, she had several recurrent attacks of pain and bleeding continued. Ectopic gestation attended by almost continuous bleeding for one month seems a little out of the ordinary.

Her initial symptoms developed on Thanksgiving Day and it had been just a month since she menstruated. In ectopic gestation there is usually a history that menstruation has been delayed anywhere from a few days to two weeks or more, This patient menstruated absolutely on time to the day, yet she had a tremendous hemorrhage into the abdominal cavity. She had seven or eight attacks of pain during the month prior to admission, and evidently with each attack there was hemorrhage.

The patient was anemic on admission and her blood count was low after operation, consequently it seems probable that the figures given me were incorrect. I doubt if she had an erythrocyte count of 3,000,000 now, and certainly her hemoglobin is less than 65%. According to my experience a low leucocyte count is unusual in ectopic gestation. Intra-peritoneal hemorrhage gives a high leucocytosis the same as does peritonitis. In ectopic gestation, of course, there is a bio-chemical peritonitis rather than an infectious one, and the leucocyte count is high. I have seen several cases with leucocytosis of 25,000 with a polymorphonuclear percentage between 78 and 81. Evidence of anemia with increased leucocyte count and pain in the abdomen are symptoms noted in intra-peritoneal hemorrhage whether due to ectopic gestation, ruptured spleen, or some other intra-abdominal lesion. I believe the general conception and teaching is with marked increase in the leucocyte count means infection. This is not always true because it nearly always occurs in intra-peritoneal hemorrhage.

The first patient is still menstruating, but the flow has become scanty. She was operated upon six days after the onset of symptoms. She was not nearly so ill as the second patient who was operated upon one month after symptoms became manifest.

The most important point is that both patients recovered without post-operative symptoms worthy of note.

Case III.—The third patient is a woman, aged forty-two years, who has a gastric lesion. She was admitted to the hospital January 25, 1922, her chief complaint being "pain in her stomach." Her family history is entirely negative. Personal history: Ordinary diseases of childhood; smallpox, scarlet fever, frequent attacks of tonsillitis. During the last two years she has lost fifty-four pounds in weight. She has no cough and her appetite is reported as good; that is to say she gets very hungry but is afraid to eat. After eating she has pain appearing within an hour which is relieved by belching. She has no nausea nor vomiting excepting when the latter is induced by herself. The ingestion of water especially causes pain.

She gives the further history that for the last six months she has been very hungry almost constantly; that she would eat anything she wanted for two or three days, then she would become so uncomfortable that "she would put her finger down her throat and vomit everything she had eaten.." She has lost weight steadily.

Examination shows an extremely emaciated woman, the skin on her abdomen being very much relaxed. Abdominal examination reveals a freely movable nodular mass in the right hypochondriac region which is apparently about the size of a lemon or hen's egg.

Laboratory findings: Blood count shows leucocytes 5,800, erythrocytes 3,500,000, hemoglobin 65%. Urinalysis entirely negative. Gastric analysis: Twelve ounces retention; normal appearance, but tinged slightly with green; odor musty; free Hcl 57%; total acidity 84%. No lactic acid; occult blood positive; no Boas-Oppeler bacilli; few starch granules. Roentgen-ray examination showed a filling defect at the pylorus.

The question of diagnosis naturally arose in this case, and Dr. J. W. Moore, who also examined the patient, agreed that there was probably a large indurated ulcer near the pyloric opening. We do not know yet whether the diagnosis is correct or not.

On February 2nd I had the patient prepared for operation with the intention of doing a Billroth No. 2, i. e., resecting the stomach and making a posterior gastro-enterostomy; but after considering the strength of the patient, the degree of emaciation and her general condition, we thought best to perform gastro-enterostomy first and then if her condition warranted to accomplish resection later. We accordingly did a classical posterior no loop gastro-enterostomy, and while the condition of the patient was still good at the completion of the operation, still we thought best to stop there and give her the benefit of three or four weeks feeding as she has been starving for six months.

At the time of the operation the stomach was very much dilated, and at the pylorus was found a nodular mass about the size of a hen's egg which we had noted upon external examination. There were no enlarged glands along the greater curvature, but one or two were noted along the lesser curvature adjacent to the nodular mass described. There were no palpable glands in the lesser omentum and no evidence of metastatic growth in the liver or its hilus.

She vomited once immediately after the operation, but she has not vomited since. Unfortunately last night she developed a complication. She began to cough rather vigorously and said she felt "something let loose in her abdomen." This morning in making the rounds I loosened the dressing and it was found that about one and a half inches of the operative wound had reopened probably as a result of the paroxysm of coughing. This was again closed with sutures of silkworm gut.

My opinion is this patient has a large chronic ulcer of the pylorus with obstruction. I do not believe it is neoplastic. The mass is hard and it is impossible to state positively whether it is a neoplasm or an ulcer, but there is absolutely no sign of metastasis anywhere. She has been complaining of "indigestion" for about fifteen years, so the probability is that the lesion is an ulcer. What the microscopic examination will show I do not know. In about three weeks a resection will be done and I shall be glad to report further particulars.

DISCUSSION:

Chas. Farmer: The cases reported by Dr. L W. Frank are exceedingly interesting. The observation of two cases of ectopic gestation in the City Hospital within a week must be unusual. I do not recall having had two such patients under my care during my service at the City Hospital.

I was particularly interested in Dr. Frank's remarks regarding the leucocyte count in ectopic gestation. I recently had under observation a woman who had missed her period for two weeks; that is, it had been six weeks since she had menstruated. At the breakfast table one mornig she had a sudden, sharp pain in the lower abdomen and fainted. At nine o'clock that night she was seized with severe pain; when I saw her at ten o'clock she was very pale and her pulse was 140. She was taken to the hospital at once; blood examination showed leucocyte count of 22,000. She had a ruptured ectopic gestation. I mention this to show that in cases of this kind the leucocyte count increases very rapidly.

Dr. Frank's statement as to the cause of the increased leucocyte count is especially interesting and important. He is probably correct in the explanation he has given for the sudden and rapid rise in the leucocyte count.

L. K. Baldauf: The cases reported by Dr. W. Frank are extremely interesting, especially the second one where evidence of almost constant hemorrhage was present from the first. The increase in leucocyte count in ectopic gestation has always been of considerable interest to me. I have never seen a patient with ectopic gestation who did not have a high leucocyte count. Of course, that fact makes the diagnosis uncertain because of the difficulty in differentiation between ectopic gestation and infection and inflammation.

I do not know whether I am right or not, but I have always thought pregnancy had something to do with a high leucocyte count. In normal intra-uterine gestation it is the rule to have a high leucocyte count, and it is reasonable to attribute this to the pregnant state. I believe it was Dr. H. E. Tuley who stated before this society some time ago in discussing ectopic gestation that where uncertainty exists a curettment will oftentimes clarify the diagnosis. It is interesting to note that in ectopic gestation there may be changes in the endometrium similar to those which occur in normal pregnancy.

In the third case reported I agree with Dr. Frank that the patient probably has an ulcer. If malignancy existed metastasis into the liver would probably have occurred before this time and there would have been a high leucocyte count.

Louis Frank: The three cases reported by Dr. W. Frank are especially interesting. The first point I wish to mention has already been discussed, i. e., the increase in leucocytosis. We have observed an increase in leucocyte count in several cases where there was no evidence of infection, especially in external trauma with probable internal damage and hemorrhage. I recall one woman in particular whom we thought had hemorrhage from the liver following trauma. She was in bed for quiet a while and suffered considerable discomfort. In practically every case we have seen where there was intra-peritoneal hemorrhage from any cause there has always been an increase in the leucocyte count. This has not been accompanied, however, by any marked increase in the polymorphonuclear cells.

Careful anamnestic and clinical investigation, if the physician will take the time and trouble to make a thorough examination, will in nearly every instance bring to light classical and typical symptoms from which a positive diagnosis of ectopic gestation can be made. We have only recently dismissed from the hospital a private patient operated upon for ectopic gestation. In that case I was chided a bit for going so minutely and in such detail into the history of the patient, yet upon reading the history it is absolutely typical of ectopic gestation. It has been my observation that the clinical history is always typical if one will take the time to make proper investigation. I know of nothing else, unless it be some of the very characteristic cases of duodenal ulcer, in which the patient presents such a classical history as in ectopic gestation. An error is sometimes made where an unmarried individual comes to us with sudden onset of pain in the right lower abdominal quadrant, and where we may be misled by the family and by the patient herself who fears what may have happened and we are unable to obtain a definite history. Yet in such cases careful questioning of the patient and consideration of the physical findings will in most instances establish the diagnosis.

In regard to recurrent hemorrhages in ectopic gestation: I am inclined to think these hemorrhages are from erosion of the blood vessels rather than from what we term rupture due to distension of the oviduct by the fruit itself. In tubal gestation there is erosion of the vessels which, of course, does not occur in uterine implantation. In ectopic gestation there is formed a so-called decidua just as in intra-uterine pregnancy, and this false membrane formed in the uterus may give rise to frequent bleeding.

Only yesterday a patient came under my observation, and after examination it was very questionable whether she had ectopic gestation or not. I was inclined to the belief that the pregnancy was intra-uterine. The abdomen was exquisitely tender, which precluded thorough investigation; the patient had some elevation of temperature which is not unusual in ectopic gestation after a week or ten days from absorption of disintegrated blood cells. As I have said, this patient's abdomen was so exquisitely tender, the uterus being fixed behind the promontory, that it was impossible to make a thorough physical examination, and it required anesthesia before a positive diagnosis could be made. When the incarcerated uterus was released and allowed to ascend we were sure it was not an ectopic gestation although a small mass could be felt to the side of the uterus. The introduction of a curette brought away the placenta and a small embryo which was decomposed and distinctly odorous. Patients with ectopics bleed until the decidual membrane is expelled from the uterus or is removed by curette, and unless one investigates the history most carefully an erroneous diagnosis of abortion will be made. I have seen several patients who had been treated for abortions rather than ectopic gestation.

I saw on the operating table the third patient exhibited by Dr. L. W. Frank. While I may be mistaken I am inclined to agree that the lesion is a pyroloric ulcer, but it is the type of ulcer which demands resection just as much as if it were malignant. It has reached that stage where it is potentially malignant. With the large amount of induration and infiltration of the immediate area, even though malignacy has not occurred at present, it is very rare that this type of ulcer completely heals and the probability is that malignancy would supervene. For that reason I believe a pylorectomy should be done. I recall with much regret an individual operated upon eight years ago for an indurated ulcer in the pyloric area. A classical posterior gastro-enterostomy was performed. About two years ago the man returned with a carcinoma in the pyloric region which was beyond any hope of operative relief. The man has since died from cancer.

I have been much interested in the viewpoint taken by some of the internists recently in regard to the development of gastric carcinoma, their ideas apparently being directly opposed to the observations of many surgeons, especially those connected with the Rochester Clinic. If I am not mistaken statistics from the Mayo Clinic show that between eighty and ninety per cent of gastric cancers are engrafted upon chronic ulcers, maligancy beginning in the overhanging margins of the ulcers usually. In contradistinction to the foregoing opinion several hundred cases are reviewed in a recent issue of the Journal of the American Medical Sciences, and it is the conclusion of the authors that carcinoma is not engrafted upon gastric ulcer in more than six or seven per cent of cases. And according to their experience and pathological studies where carcinoma does supervene it begins in the central portion of the ulcer rather than in the overhanging edges, and they are inclined to question the interpretation of the pathological findings in the cases at the Rochester Clinic. Be that as it may, we know that chronic, indurated gastric ulcers not infrequently give rise to later carcinoma, and under such circumstances resection is the most appropriate plan of treatment.

In this connection I would like to mention a patient whom we saw on the surgical service in the City Hospital in 1917, a man over seventy years of age, who had been declined operation by the visiting surgeon. He had an enormous indurated ulcer on the posterior wall. We had opereated upon him twice before for other lesions, and as he was refused operation for his gastic ulcer he left the hospital. He finally came to us for surgical treatment, not caring, as he said, whether he lived or died. A trans-gastric resection was performed with direct suture under gas oxygen anesthesia. At operation we found that the ulcer had perforated and the stomach had become adherent to the pancreas in that situation. That man is still living, his symptoms having entirely disappeared. Several Roentgen-ray examinations have been made since the operation and while there is no filling defect, there is some deformity at the site of the excision. The man is in fine physical condition and feels perfectly well. In ulcer cases of that type I think resection should always be done when possible.

Another point mentioned by the reporter which I think is very valuable from a practical standpoint, and that is the management of these patients who have practically been starving for many months. In such cases I think it is the height of surgical wisdom to perform the necessary surgery in two stages. It is a mistake to attempt to do too much at one time. Even if the patient is apparently in good physical condition, there will be nothing lost by doing the two-stage operation. Certainly this is preferable to primary excision with death of the patient and further study at autopsy. I think many of us are prone to attempt too much at one sitting, and I am sure there are many instances in which surgery is badly needed in which the individual will be much better treated and the ultimate results so far as the conservation of life is concerned will be more favorable by the two-stage operation.

In an individual of this character, with the lesion which she has, one who has been starving for several months, with an incision in the upper part of the abdomen, we occasionally have the operative wound to reopen. I have seen such an accident happen in three instances following gastro-enterostomy, under circumstances similar to those cited by the reporter. And I would like to lay particular emphasis upon the point that, if the term may be used, we should be more than usually careful in closing all operative wounds in the upper abdomen. We should be exceedingly careful to see that every needle hole is perfect; that the tissues are accurately approximated; that there is no tearing anywhere. The least imperfection in the technique of closure in wounds of the upper abdomen may be followed by reopening and further trouble. Lower abdominal wounds also sometimes reopen, but the accident is more prone to happen in upper abdominal wounds, and if there is any place where more than ordinary care should be exercised in closure of the peritoneal tissues and the abdominal wall in general, it is in operations upon the stomach.

John Walker Moore: Referring to the last case Dr. W. Frank reported: The woman was sent to the hospital for Roentgen-ray examination and Dr. Turner referred her to me for investigation to determine whether or not she really had any gastric disturbance. This plan was followed because oftentimes patients sent from the outside for Roentgen-ray examination of the stomach are found to be suffering from lesions of other organs instead of the stomach.

After obtaining a brief history I requested the patient to return the following morning after a test meal half an hour before she reported for removal and examination of the gastric contents. She did as directed and I withdrew from the stomach 500 cc. of greenish, sour material, the most of which, of course, was not contained in the test meal she had taken. Analysis was made of the gastric contents with findings practically the same as reported by Dr. Frank. There were no Boas-Oppler bacilli, no lactic acid; there were a number of starch granules, an enormous amount of yeast with a very high free Hcl. I then asked the patient to enter the city hospital for further observation and study. This was done after conference with the family physician.

Considering the Roentgen-ray report, the blood examination, the gastric analysis, with the history that the patient had suffered from fairly active gastric symptoms for several years, and the further history that she had lost over fifty pounds in weight during the last two years, we naturally concluded that we were dealing with an ulcer rather than a neoplasm, because the patient is certainly not cachetic. While a mass about the size of a hen's egg could be palpated in the pyloric region, I felt that even so we were dealing with ulcer.

As to the possibility of carcinoma being engrafted upon ulcer, I think that is most likely true in this case because the patient has had some gastric disturbance for the last fifteen years; and if there is anything in the theory of chronic irritation in the production of carcinoma this is likely to be such a case. I am quite sure many of the leading pathologists of the country disagree with MacCarty, of the Mayo Clinic, as to the percentage of cases of carcinoma engrafted upon gastric ulcers. He has shown numerous photomicrographs of slight adenomatous formation around gastric ulcers, but I do not believe this has been interpreted by the majority of pathologists throughout the country as precancerous or even the early stage of carcinoma.

I was pleased to hear Dr. Frank say that he performed preliminary posterior gastro-enterostomy upon this patient reserving excision for a later operation, because that looks to me like the most rational and logical method of management. The patient is exceedingly anemic and below par physically and probably primary resection would have resulted in a fatal outcome.

L. W. Frank (closing): In the first case reported most of the blood in the cavity was fluid; there were some small but no large clots. In many cases of ectopic gestation that I have seen, where the menstural period had been passed only a few days, most of the blood in the abdominal cavity was fluid.

Referring to Dr. Baldauf's remarks concerning the third case reported: In making the diagnosis of ulcer we did consider the low leucocyte count with practically normal polymorphonuclear percentage. In malignancy there is usually an increase in the leucocyte count and also an increase in the percentage of polymorphonuclears. In addition we had to consider that there were no Boas-Oppler bacilli, and that the patient had complained of gastric disturbance for fifteen years. Regardless of the fact that there was a palpable mass in the pyloric region we had to conclude that it was ulcer rather than malignancy.

In explanation of the reopening of the abdominal wound, I may say that this is the only case operated upon during the last four years in which stay sutures of silkworm gut were not used in closing the abdominal incision, and it will be the last one. I have always considered it advisable to use silkworm gut in abdominal closure, but in this case the abdominal wall was very thin and after closing the peritoneum carefully catgut (chronic No. 2) was used for fascia and skin closure. Examination following the paroxysm of coughing showed no evidence of healing in the lower half of the incision. I think this may be attributed to her malnutrition and the devitalized state of the tissues more than any other factor. There was no evidence of infection and the upper half of the wound remained perfectly closed.

As to the question of ectopic gestation and the leucocyte count: One of my patients had a leucocyte count of 12,000, the other 14,000, which I considered rather out of the ordinary. We know that as a rule pregnancy does cause leucocytosis. I have often noted a leucocyte count of 10,000 to 12,000 in pregnant women. In ectopic gestation the leucocyte count is usually much higher. As Dr. Farmer has said, it is often as high as 22,000. In most of the cases I have seen the leucocyte count ranged between 17,000 and 25,000. I think this is due to peritoneal irritation from the presence of the blood.

The diagnosis of ectopic gestation is easy in typical cases. There is no reason why a correct diagnosis should not be made in the majority of instances. However, as Dr. L. Frank has said, in single women we are sometimes misled by the standing of the family and the incorrect history which is obtained. Another class of cases in which we may be misled, and in which I was misled not long ago, is that of married women who have attempted to induce an abortion. In the case to which I have just referred I saw the patient about eight weeks after an attempt had been made to procure an abortion under the supposition that she was normally pregnant. She was referred to me with the diagnosis of peritonitis in which I concurred. Operation demonstrated that she had a long standing ectopic gestation plus infection. In a case like that it is difficult to come to any definite diagnostic conclusion.

Referring to Dr. L. Frank's remarks about bleeding in ectopic gestation being due to erosion of the vessels by the decidua: In the second case reported hemorrhage not from the pregnancy itself, but from the broad ligament below.

THE MODERN TREATMENT OF OBESITY.*

By Sam Rose, Winchester.

The treatment of obesity is one of the most satisfactory conditions that the physician is called upon to supervise, and his success will depend largely upon his attention to detail and his ability to overcome difficulties as they arise during the course of treatment. For many years the commonly accepted method of treatment has been embraced under three headings: Treatment by diet, by exercise, and by drugs. Recently surgical measures have been advocated by a few, perhaps misguided enthusiasts and there have been introduced methods of treatment by hydrotherapy and by various mechanical and electrical procedures. Since we are all more or less familiar with these methods the writer is especially interested in the treatment of obesity by electricity which produces involuntary or passive exercise, therefore this article.

Professor Bergonie read a paper before the Academy of Science in 1909 upon the employment of electricity in order to induce exercise or stimulation of the muscles of the body toward a therapeutic end. The principle upon which the treatment is based can be summed up a sfollows: The proper use of any organ increases its vitality and also influences the development and function of the entire organism. The application of this principle is utilized in the development of the muscular system. Electrically provoked exercise consists of muscles being contracted in physiological rhythm, both in rate of muscle fibrillation (about 30 per second) and frequency of heart action.

To induce such exercise without fatigue is a desideratum which has long been sought, for combating those conditions in which combustion is insufficient, as presented in cases of obesity, some forms of diabetes and all forms of suppressed uric acid elimination.

There are various currents employed depending upon the type of apparatus the electrotherapist may select. Titus of New York prefers a modified Nagelschmidt-Bergonie apparatus which applies what may be called a coarse-wire Faradic current, while Professor Blake of the Chicago Hospital College of Medicine and Surgery employs the Nagelschmidt-Bergonie machine as constructed in Germany. Dr. Vincent Lyon, Jefferson Medical College, Philadelphia, and Dr. E. A. Miller, of Chicago, prefer the Schnee-Nagelschmidt-Bergonie apparatus. The writer selected the latter type of machine since less care is required in its operation, unpleasant shock, etc., is eliminated for in the type used by Titus, precaution must be used in all minor details, such as the thickness of the cloth applied over the patient's body where the metal electrodes are placed. If one cloth is the least bit thicker than another unpleasant pricking is felt by the patient, while this is not true in the apparatus used by Miller, Lyon and the writer. The Schee-Nagelschmidt-Bergonie apparatus uses what may be called a modified Farido-sinusoidal current, or as Dr. Miller chooses to call it, a condensor current.

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*Read before the Fayette County Medical Society.

Without going into further details of construction, the essential features of the apparatus are these: The most important part is a stand known as the Degrassitor on which is a switch table containing voltmeter and a milliameter, guaged from five to fifty milliamperes. It is also equipped with two reostats for regulating the voltage and for controlling three capacities of five, ten and twenty microfarads. By the combined use of these three capacities, 5, 10, 15, 20, 25, 30 and 35 microfarads can be applied. In addition to these necessary conveniences the switch table is supplied with extra switches for single and automatic rhythmical discharges, the number of the latter being regulated by a metronome, supplied for that purpose, which has a range of from forty to two hundred and thirty impulses per minute. It also has a main switch, a current reverser and an incandescent lamp (connected in series with the terminals).

From the switch table are wires running to and connecting with a couch or chair in which there are four large electrodes (metal); two for the back and two for the seat, and are made and arranged so that they can be detached and sterilized. On the sides of the chair are plugs used for the attachment of cables with flexible metal electrodes. At the head are fifteen small switches where the electrodes are applied to the positive and negative poles. The electrodes, fifteen in number, including the indifferent electrode, are made of Brittany metal and can be heated and sterilized.

The patient is placed in the chair and the electrodes referred to above are applied, as the case demands, to the arms, forearms, thighs, legs, breast and abdomen. Sandbags weighing from ten to fifty pounds are placed on the arms, legs and body in contact with the electrodes for these parts. These bags act as a resistance for the contracting muscles while under stimulation and the weight is increased from time to time in the course of treatment until it has reached from one hundred to two hundred pounds.

The duration of each treatment varies from ten to sixty minutes. It is advisable, however, to start with only a ten-minute treatment and increase gradually until the sixty-minute limit is reached, all things being favorable for such a prolonged treatment. The number of treatments per week depends upon the condition and inclination of the patient. But as many as two treatments a day can be given without injurious effects. To obtain the best results in this condition under discussion, enough treatments should be given to cover a period of from three to eight weeks, and then, if necessary after a period of rest of from two to three months, another course of treatment can be given. The grouping and arranging of treatments in this manner seem to be the best mode of procedure, especially in obstinate cases. In the greater majority of cases such a prolonged course of treatment is very rarely necessary.

The effects upon the patient both temporarily and permanently should be the best reason for the existence of this article, and the writer shall endeavor, as well as he can, to point out some of the most important ones.

The anaesthetic effect of the condensor discharges permits of the most intense contractions of all the muscles of the body. These contractions are produced without the power of the will of the patient and consequently no vital energy is wasted. And not withstanding the fact that the aggregate weight of the sandbags used is from one hundred to two hundred pounds, no fatigue is experienced after the treatment.

The stimulation of the vaso-dilators by electrical current produces, as we know, a dilatation of the peripheral blood vessels, hyperemia of the skin, perspiration and an increase of temperature.

Respiration is stimulated both in frequency and capacity, thus favoring the intake of oxygen and the output of carbon dioxide.

A slightly quickened pulse with a greater amplitude and a sharper dicrotism is without doubt sufficient proof that the resistance in the vascular system is reduced and a stronger systole and diastole obtains. In many cases a marked increase of the systolic and diastolic blood pressure will be noticed to take place slowly. All of these phenomena disappear very quickly after the application. The stimulation of active physical exercise in any form presents such a symptom complex as we have just enumerated, and after the body has become accustomed to the exertion the prominence of these symptoms is lessened.

And so it is with our patient who is being treated with the Degrassitor discharges. For this is truly as active exercise as any other, but with the advantage of conserving the vital energy since his brain plays no part in the matter. His heart, instead of becoming weakened, as is the case with other methods of treatment, becomes stronger. And after the treatment his muscles respond to the power of the will with such ease and agility that refreshment and comfort as if by magic seem to take the place of fatigue. The effect is that the fatty deposits are turned into real live agile muscle tissue with an active brain and if the patient will live moderately, taking the least bit of care in his selection of food, he can even reduce a great deal more after he has abandoned the use of the electrical apparatus.

It is no exaggeration to say that as much as a pound a day can be taken off and even more than two pounds if, in addition to the above treatment, a dietetic regime is adhered to.

After the presentation of the above facts it would seem but natural and logical for all thinking readers of this article to ask the following questions: If electrical treatment accomplishes the same results as active exercise, then why not direct the patient to follow simple rules in calisthenics and dietetics? In reply to this question the writer wishes to say that up to the present time it has proved impractical in the majority of cases, and the reasons are as follows: (1) The condition of the heart in most of these cases would not permit the required amount of exercise for the desired results. (2) If such exercise were possible, most patients after the effort would be inclined to partake of food and drink, thus defeating our purpose. (3) And most important of all is the lack of necessary courage and perseverance for such a task. Thus we are compelled to search for some other method than those just mentioned by which we can overcome these difficulties.

It will be noted that the improvement is evident from the beginning of the treatment. There will be a decrease in the gross dimensions out of proportion to the loss of body weight. This can be accounted for by the development of muscular structures and the absorption of the bulky adipose tissue.

As further proof of the transformation of a patient's signs of flabbiness to athletic sinuosity, the loss in girth measurement is far greater than the proportionate loss of weight. The patient is actually transformed from a dull, flabby and listless individual to a robust, athletic and active personality. His expression, instead of being lethargic, becomes bright and his eyes have a twinkle of wakefulness.

This, then, is but one condition wherein we have found the application of electricity successful. What about its uses in other conditions? Its use in muscular weaknesses, flabby abdomen of multipara weaknesses, the heart muscle, chronic constipation, diabetes mellitus, varicose veins which have not become ulcerated, high blood pressure, etc., has met with the same wonderful success as in obesity. In all cases there has followed a sense of exhilaration, a desire for voluntary exercise, absence of fatigue, better appetite, improved sleep, better digestion and absence of constipation or vastly improved. Furthermore the weight has a much greater tendency to stay reduced, in many cases permanently, than results obtained by other methods.

In conclusion the writer wishes to say that the subject thus presented should at least impel all physicians to an honest investigation, for he feels that this subject possesses unlimited possibilities, both as to its present application and to its future evolution. And if the writer has done nothing more by presenting this paper than to arouse those interested in this branch of science to at least an unbiased opinion and attention sufficient to discover the merits of this treatment, he will feel that his efforts have not been in vain.

Ether Treatment of Peritonitis.—Lienhardt had one instance of collapse among the 101 cases of peritonitis in which he rinsed out the peritoneum with ether, but a few others have reported similar experiences. Not more than 100 gm. should ever be used. It seems to tend to reduce the temperature and stimulate leukocytosis, in addition to the striking post-operative analgesia; but the principal advantage is the active inflammation and exudation which pours out antibodies on the infectious process. The local chilling from the ether stimulates the bowel and vessels to contract, and thus it promotes peristalsis and the circulation. The great drawback is the development of adhesions and bands later. These were not prevented by associating camphorated oil with the ether, and hence this ether treatment should be reserved for only the severest cases. The mortality in his twenty-two cases was 18.1 per cent.

THE LABORATORY IN DIAGNOSIS.*

By LEON K. BALDAUF, Louisville.

Before making a diagnosis, it is important that all clinical and laboratory data be collected. Where a diagnosis is obscure every clinical or laboratory finding is of consequence. The more complete the examination the more certain will be the conclusion and the more secure will it be against criticism. It has seemed always unfortunate that there should have been a controversy as to the relative merits of the laboratory or clinical methods.

In certain cases the information derived from a careful clinical examination is sufficient and requires little or no laboratory confirmation; in certain cases the clinical evidence is insufficient and laboratory research is necessary; in other cases the diagnosis is entirely dependent on the laboratory and cannot be made after a most painstaking history or physical examination.

In many instances I have had difficulty in differentiating between what are accepted as clinical and what are accepted as laboratory methods. Why should an ophthalmoscopic, a laryngoscopic or blood pressure determination be considered part of the clinical and the x-ray examination or the stomach washing part of the laboratory examinations. These are all clinical laboratory determinations and as such should be accepted.

The criticism which has been held against certain laboratory data is applicable to the clinical data as well. Different patients at different seasons with the same disease may present signs and symptoms which are far from constant. The laboratory findings may vary similarly. There are few hard and fast rules in medicine and the physician realizes this whatever his line of work.

Where the laboratory and clinical findings correspond the diagnosis may be easy. Where, however, there is an apparent difference the diagnosis is more difficult. Experience in deciphering both clinical and laboratory data is necessary here to reach a decision. The ideal examination should include all the clinical and laboratory examinations possible. A complete routine examination is always desirable. Most frequently, however, this is impossible. Only a few laboratory tests are available. It is important then that only essential examinations be made. It is my desire this evening to emphasize a few of these cardinal tests.

BLOOD EXAMINATIONS.

The ordinary blood examination consists of the red cell count, the white cell count, the differential and the hemaglobin determination. When should the complete count be made? For clinical purposes for detecting anemias the examination of the conjunctiva has always been satisfactory. When a decided pallor exists, a complete blood examination should be made always. In this way a differentiation between a primary and a secondary anemia can be made. Where the anemia is not sufficient to cause decided changes in the color of the conjunctiva a red cell count or a hemoglobin determination does not yield results sufficient to exclude other tests probably more important. It makes little difference if the Hg. is 85% or 90% whether we deal with a red cell count of 4,500,000 or one of 4,800,000. If, however, the leucocyte count indicates a primary blood disease the complete blood examination is helpful, the leukemias being leukanemias.

As to the leucocyte and the differential, there is probably no single laboratory test of more importance. A leucocyte and a differential should be made in all cases if possible. This is especially true in febrile cases. Some of the infections give rise to a leucocytosis and some to a leucopenia. If leucocyte counts were made more often how less frequently would erroneous diagnosis of typhoid and malaria be made. Typhoid after a few days gives rise to a leucopenia, malaria most often to no change or a leucopenia, while in a large majority of the ordinary pyogenic infections we get a leucocytosis.

What information does a simple little test like this give. To illustrate the importance let me cite two cases: A patient because of temperature elevation and certain signs and symptoms is treated for typhoid fever, at the end of several weeks because of the continuance of the symptoms and the unchanged condition of the patient a consultation is asked. The consultant requests a leucocyte count and a differential. A report of 18,000 with a polymorphonuclear leucocytosis is made. Immediately an infection which ordinarily gives rise to a leucocytosis is suspected and a very careful clinical examination is made, a systolic murmur transmitted to the axilla is detected, a blood culture is made and a pure culture of streptococcus viridans was isolated. How familiar we are with the typhoid type of vegetative endocarditis. This leucocytosis, of course, was present at the beginning of the disease.

Another case of the same type, with a similar temperature and similar symptoms, a patient had been treated for malaria, quinine had been given to the limit, but the symptoms persisted. After several weeks of leucocytosis was noted and a similar heart murmur found. typical petechia were now present.

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To illustrate the value of the complete blood test where the pallor of the conjunctiva indicates a severe anemia. A patient with a Hg. 50% and a red cell count of 3,500,000 presents an appearance, because of a peculiar yellowish tan complexion, of a typical case of pernicious anemia. Symptoms of cardiac and renal disease were present. A systolic murmur was heard over the entire heart; this murmur was not well transmitted to the axilla; there was some edema of the lower extremities and marked edema of the eyelids. After careful examination all the symptoms seemed capable of being caused by the anemia; the blood picture was one of a secondary enemia. The patient had been treated for heart and kidney disease. Careful questioning revealed a history of a previous pelvic infection and on examination a very large boggy uterus was discovered. From the uterus there had been severe hemorrhages. These had been considered of little importance by the patient.

BLOOD CULTURES.

Blood cultures frequently yield information which is decisive, as confirmatory, its value in sinus thrombosis disease and in septicemia and pyemia is unquestioned. With a temperature elevation, leucocytosis and a heart murmur, a blood culture should always be requested with a result that most frequently the offending organism is isolated.

WASSERMANNS.

Wassermanns should be required in all obscure cases even though syphilis is not suspected. Many patients are honestly ignorant of an infection. Syphilis does not always give rise to characteristic lesions and sometimes a four plus Wassermann results in a cure which is a surprise to the physician and the patient as well. As to the significance of the Wassermann, I believe that the summary of Craig covers the subject as well as any.

If the diseases other than syphilis that sometimes give a positive result with the Wassermann test can be excluded a double plus, that is, a four plus reaction, is absolutely diagnostic of syphilis. It is believed that under such conditions this type of reaction is specific of the disease whether symptoms are present or not or whether there is or not a history of infection.

Under the same conditions a plus reaction three plus or two plus may in primary, tertiary and latent infections be regarded as diagnostic provided there is a clear history of infection or suspicious clinical symptoms are present. In the absence of either history or symptoms this type of reaction should not be regarded as diagnostic of syphilis.

A diagnosis of syphilis should never be made upon a plus minus reaction alone. Many perfectly normal individuals give this type of reaction at times in their blood serum. In latent infections a plus-minus reaction if persistent should be followed by further specific treatment.

A single negative reaction where there is no history of infection and where symptoms are not present is of considerable value as a corroborative sign that syphilis is not present, but where there is any suspicion that the disease may be present it has very little value in excluding syphilis. The interpretation of the results of the Wassermann test must rest largely with the clinician for the clinical picture present is often more decisive than is the result of the test.

THE WIDAL REACTION.

As an accepted test for typhoid there will be no comment. Compared with the blood culture it is, however, inferior. In a large series of cases with excellent technique, the typhoid bacillus has been isolated in almost 100% of cases in the first two weeks of the disease. It is more frequently found in the early days of infection than in the later days. Unfortunately the Widal may be positive only in the last few days of the disease and then may not be positive. When the typhoid bacillus is isolated from the circulating blood you are certain of a typhoid infection. I never feel so certain with a Widal. Unfortunately, as with many laboratory methods there is lack of uniformity in technique and there is need of proper standardization. For a positive Widal one might require a certain dilution and a certain time limit, while another a different time limit and a different dilution; one may be content to do a Widal with dried blood and another may require fresh serum. A leucocyte count should be made against every Widal. Fortified with a leucopenia a positive Widal means much more.

As a routine we have always required a urine examination. Its importance is as real now as ever. For a time the advent of blood chemistry cast a slight shadow on its value. Certainly nothing can take the place of blood chemistry in the careful study of metabolic diseases, but frequent examinations of the urine in many instances will yield for practical clinical purposes accurate results. A discussion of the x-ray and basal metabolism tonight is out of the question.

THE ELECTROCARDIOGRAPH.

Mackenzie has shown more clearly than others that cardiac efficiency is dependent on muscle integrity. A heart singing and ringing with discordant murmurs is efficient in proportion to the ability of the muscle to perform its proper functions. The electrocardiograph has already proved its merit in differentiating irregularities. Many of these irregularities mean little, many mean much. Many muscle diseases hitherto confused are now more clearly understood, and with the accumulation of statistics, prognosis hitherto so uncertain is now more clearly defined.

The great advances made in diagnosis in the last few years have been due to the introduction of numerous instruments of precision. Great progress has been made in our physical examinations, still greater progress has been made by the clinical laboratory. It would seem that this will continue. Probably this is unfortunate since there is a tendency to be careless in our physical examinations. With greater attention to physical diagnosis, however, with improvement in laboratory methods and their proper standardization, and with a better knowledge of laboratory limitations the more closely will the physical and laboratory examinations approach, the more frequently will they coincide. We shall then no longer hear of a conflict between the clinician and the laboratory worker, no longer the statement "where the clinical and laboratory examination fail to agree discard the laboratory report."

DISCUSSION:

W. F. Boggess: I knew Dr. Baldauf would give us a practical and scientific paper, one that would be helpful to us, and not insist that the laboratory worker could always make the diagnosis for us. In all these features we have not been disappointed.

It is unfortunate, as the essayist said in closing his paper, that in modern medical teaching there is a tendency to get away from the clinical deductions based upon experience as in the older methods of teaching; that is, physicians do not now utilize their observation and experience as much as they should in deductive clinical diagnosis, many of them depending too much upon laboratory findings.

Probably no physician believes in laboratory methods more than I do, and I doubt if many use the laboratory more than I do as routine, yet as a rule I do not depend upon the laboratory findings for my diagnosis. I employ the old-time method of making the diagnosis by exclusion, and we should be able to do this in the majority of instances without assistance from the laboratory.

We have all seen fever cases, such as mentioned by Dr. Baldauf. Where fever persists continuously for several days ninety-nine out of a hundred physicians either diagnose or suspect typhoid fever. The Widal test is worthless before the eighth to twelfth day, and in many cases blood examination is without value during the first week. However, the blood examination is more reliable than the Widal test in typhoid fever. If one depends upon the Widal test to make the differential diagnosis in continuous fevers, many serious mistakes will be made. Cases like those the essayist mentioned are the ones most frequently diagnosed as typhoid fever, the patients having continuous fever, prostration and other clinical signs of typhoid, yet when the blood count shows a high leucocytosis (18,000 to 20,000) one may be almost certain it is not typhoid but some acute infection, and in that type of cases there is oftentimes reason to suspect septic endocarditis. I have seen many patients in consultation who had been treated for typhoid fever for two or three weeks, a heart murmur was then discovered and the diagnosis had to be changed to septic endocarditis. In routine blood count we have a test of great value in typhoid fever. While leucopenia is the rule in typhoid yet occasionally a high leucocytosis is present in typical typhoid from the beginning of the attack. I have had several such cases under observation. In the majority of them there is probably also pyogenic infection involving the appendix or gall bladder. There is usually leucopenia in typhoid fever, and when the leucocyte count is high we are dealing with some other complicating infection.

We have all no doubt made mistakes, especially in the differential diagnosis of appendicitis, regardless of the blood count. Cases are often seen which are clinically pathognomonic of acute appendicitis, yet are shown by operation or subsequent history to be something else. However, a careful blood count will determine the diagnosis in the majority of these cases. I have seen several where the diagnosis had to be changed from appendicitis to some other condition after a blood count had been made.

Blood and urinary tests should be made as routine measures in every case in which the diagnosis is not clear. A great deal may be learned about the status of the patient by examination of the urine, other than the presence or absence of renal disease. Much information can be secured about the metabolic activity of the patient and his general physical condition from examination of the urine without any reference to the kidney. I saw a young woman day before yesterday who was dropsical and edematous. Investigation showed nothing wrong with the heart or kidneys and she had no fever. In such a case the cause may be one of two things, either an edema which comes from pernicious anemia, or a severe acidosis which may cause edema without evidence of a kidney lesion. Nitrogen retention may be sufficient in some cases to produce general edema and a dropsical condition. Careful blood examination and blood chemistry will clarify the diagnosis in such cases.

Basal metabolism determination is one of the newer laboratory methods which I think is going to be of some value, but no one has yet determined what is the constant or normal metabolic rate. We know it is subject to wide variation in different individuals; depending more or less upon vitality, activity, mode of living, etc., and until the constant is determined basal metabolism cannot be looked upon as a fixed and definite laboratory determination. Unfortunately basal metabolism does not differentiate the two diseases which we have difficulty in differentiating clinically; that is incipient pulmonary tuberculosis and exophthalmic goiter. The basal metabolic rate is about the same in both diseases. Take a thin, nervous woman with beginning hyperthyroidism, without accompanying exophthalmos—and we are seeing more hyperthyroidism today than ever before—the patient having slight temperature elevation, rapid pulse, tremors, etc., long before appearance of physical signs to justify the diagnosis of tuberculosis, and I will defy anybody to say whether that woman has incipient tuberculosis or hyperthyroidism. However, I think eventually basal metabolism determination is a laboratory method which will prove of some value.

I was glad to hear Dr. Baldauf call attention to the worthlessness of one and two-plus Wassermanns. Quite frequently I have received reports from the laboratory reading one-plus. Unless there is a positive history of syphilis one-plus does not mean anything; and in the absence of a clear history of infection or positive clinical signs of syphilis, I doubt whether even a two-plus is worth considering. However, a three or four-plus is positive evidence of the existence of syphilis.

Negative Wassermann reports are also absolutely without significance. Oftentimes despite the clinical evidence of syphilis the blood Wassermann will be negative. I do not care what the stage of syphilis may be, nor what technique or method the laboratory man uses, in twenty per cent of instances the blood Wassermann will be found negative. In many cases where reports have come from the laboratory negative I have proceeded with antisyphilitic treatment and the patients promptly recovered. Where syphilis is suspected, even if the Wassermann is negative, we are always justified in employing the therapeutic test.

The Roentgen-ray is of essential value in the diagnosis of many gastro-intestinal and cardiac diseases, but I cannot say it is of very great importance in tuberculosis work. If every man present had his chest examined by a capable and conscientious roentgenologist who was unknown to any of us, I suspect he would say the chest was suspicious of tuberculosis in a majority of the cases. Anyone who has had pleurisy or what we used to term pleuro-pneumonia, or if as a child he had severe pertussis or capillary bronchitis, or if he had influenza during the epidemic of 1918-1919—when we saw every type of lung pathology that was ever known and many types which were never known before—I suspect that the majority of such individuals under x-ray examination would show scars, adhesions and calcareous glands giving a typical picture of a tuberculous chest, yet with these facts I use the x-ray in my chest work as a help, particularly as to the extent of involvement.

Where there are positive signs of tuberculosis, th Roentgen-ray may be useful in confirming the diagnosis; in early cases it may show areas of involvement which cannot always be outlined by physical examination. However, I am sure that anyone who depends upon the Roentgen-ray in tuberculosis pulmonalis will make many serious mistakes in diagnosis and conclusions, for it is unable to show the difference between old healed lesions and acute processes.

Leon L. Solomon: I enjoyed Dr. Baldauf's paper. We know him to be a laboratory man, thoroughly proficient, and we know him to be a clinician of large experience, whose observation and study, by the side of the learned Osler, gave him vast insight, and whose further study, as a practicing physician, has helped to place him where he stands today, pre-eminent in the field of diagnosis, both from its laboratory and from its clinical aspects. The doctor refers to the conflict between the laboratory man and the clinical physician.

When we stop to consider that clinical medicine is as old as man himself, and that laboratory medicine, in all of its various aspects and phases, is of recent origin, it is natural that there should be conflict of opinion between the clinical worker and the laboratory technician. Crile, who is a great clinician and who has been a consistent laboratory worker, it was, who said what Dr. Baldauf suggested in the closing words of his essay: "When the laboratory fails to confirm the clinical findings, have the laboratory revised.

Now, it is the revision of the laboratory that I think is worthy of serious consideration tonight, and this represents the crux of the situation referred to in the paper of the essayist. The finding of the tubercle bacillus in the sputum more or less proves the patient to be the subject of tuberculosis; the absence of the tubercle bacillus in the sputum in no wise plays such an important role, but the persistent use of the laboratory and the "revision" of it, as Crile has said, may sooner or later, in a suspicious, though negative clinical case, reveal the tubercle bacillus, whereby doubt is removed and the diagnosis becomes certain. Similarity, the absence of the malarial parasite in the blood examination sometimes causes conflict between the clinician and the laboratory worker, so far as the diagnosis is concerned. We know that the organism of Laveran is often difficult to find in the blood stream and for various reasons. However, the persistent study of the blood, "revising the laboratory," as it were, allowing the patient to emerge from his state of quinine saturation, will oftentimes clarify the diagnosis by the finding of the organism. The laboratory, always helpful to us, may be especially cited as of unique value in the differentiation of diagnosis in the following seven clinical entities:

(1) Tuberculosis, (2) typhoid fever, (3) malaria, (4) septic endocarditis, (5) pyelitis, (6) septic infection of the gall bladder, and (7) thyrotoxicosis. These seven clinical condition occasionally very easy of diagnosis, more frequently are exceedingly difficult, requiring the best there is in the physician, first, from the standpoint of a study of history; second, from a study of the patient, clinically, and third, from a working knowledge of laboratory methods, leading to laboratory revelations.

Speaking of revising the laboratory findings: We often find a patient, who, for a period of a month or six weeks, will persistently have sugar in the urine and a diagnosis of glycosuria is made. There may be no clinical symptoms, but the patient never once loses the evidence of glycosuria. The laboratory was not in error in the first place nor did the clinician err in the second place. Continuous observation and persistent laboratory study will, under these circumstances, easily clarify the diagnosis, telling you whether you have a transient glycosuria or whether the patient is a confirmed diabetic.

The question of the role of the laboratory in the study of anemias is important and was emphasized by Dr. Baldauf. How often have we been in doubt as to the diagnosis, our doubt leading us in the direction of tuberculosis, with never once a blood study? Then a blood study is made and a primary or a simple secondary anemia is found. I recall two cases which may be of interest in this connection. One was a man who was looked upon as a tuberculous subject. He had pronounced anemia, hemoglobin, 45%, red blood cell count of less than three million. The finger introduced into the rectum made the diagnosis of internal hemorrhoids, from which a small amount of bleeding was easily seen through the speculum. Another patient, seen not long ago, was also presumed to be a tuberculous subject. He was in government service, as a mule buyer until he went into a state of general decline and became bedridden, supposedly with tuberculosis. A blood study, showing simple secondary anemia and the routine finger in the rectum made the diagnosis of bleeding hemorrhoids. I recall a man who was about to have his left kidney removed. A diagnosis of tumor of the left kidney had been made. A white blood count showed 360,000 cells, and a study of the clinical findings and the blood at once proved the way to a diagnosis of splenomyelogenous leukemia. Needless to say, the operation was abandoned.

Diagnosis and History: The diagnosis is ofttimes made by history. Indeed, I think as often by the carefully taken history as by the clinical examination. However, the carefully made clinical examination is all important. We sometimes see a young woman with persistent nausea and vomiting which cannot be explained. We dare not mention the possibility of pregnancy and yet the symptoms persist for weeks and weeks. I remember such a case, in which I invited my friend, H. E. Tuley, to break the news to a fond mother that her young unmarried daughter was pregnant. The clinical makes the diagnosis, the history makes the diagnosis and so does the laboratory sometimes easily make it.

I want to differ entirely from my splendid friend, the excellent clinician, Dr. Boggess, and it is not often that I am forced to differ with him. In regard to the advantage of the x-ray in the diagnosis of disease, involving the lungs or the gastro-intestinal tract, I hold a contra-opinion to his, believing that the fluoroscope and the roentgenogram are most valuable aids in thorax and in abdominal diagnosis. I must also differ with him when he says that "post-influenza calcified glands" are ever found. I think I have the right to speak with more or less authority, because I have seen a vast number of these patients, in general practice, and a large number have been referred to me by the Marine Hospital. We sometimes see two or three such new patients in a day, and rarely fail to see a number during the week. Many of these boys who were in camps in America and also those who went abroad suffered from "flu." In not a single instance has the Roentgen-ray shown calcified glands in those known to have had influenza, except that a previous tubercular involvement was the cause of the calcification. There is no reason in the world why a man should have calcified glands following an influenza-pneumonia. Where calcified glands are found I believe tuberculosis has at one time existed, possibly now exists.

As to the diagnosis of gastro-intestinal lesions by means of the Roentgen-ray: This method of examination will often make the diagnosis in the absence of all clinical symptoms and signs. I recall a man who had a persistent dyspnea following meals; it came on immediately and lasted for quite a time. During the attack the patient appeared to be in desperate condition; there was not a single iota of history or anything else to suggest the cause of his dyspnea. In this instance we did something which we seldom do; that is, we took the man to the x-ray room before any physical examination was made. The examination revealed that the stomach was displaced upward and lying to one side of his heart. Some hours later a portion of the colon was seen on the other side, viz., stomach and colon lying in the thorax. There were two holes in his diaphragm, with no history to account for them. Not until the next day did his wife recall and recite to us the interesting account: "When a boy he had been a carrier of water in a coal mine; the mine had caved in on him; he had lain between life and death for many weeks." The accident was undoubtedly the cause of the diapragmatic hernia, which only the x-ray could possibly have laid bare.

As to the Wasserman reaction: I must confess that I am always more or less suspicious of a "one-plus," especially where a man in the thirties or early forties gives the history that his virile powers are not what they once were, that his organs are not as sensitive and as responsive as formerly, and that his sex sense and sex function are not in his head only. I think a one-plus, in such case, means much, whether history of infection can be obtained or not.

I claim the laboratory deserves a great deal of credit as a diagnostic measure and has never received more credit than it deserves. Every once in a while some laboratory worker invents a new procedure, which proves useless and the laboratory is thus brought into disrepute. As the essayist has well said, much of the work done by the laboratory is clinical in reality. Some of the laboratory methods are useless, because we do not know how to interpret the results in either health or disease. If you want to know a single reason for the laboratory coming into disrepute, I will tell you one—it is disparaged and discounted because we have expected too much of it. We expect the blood chemistry laboratory, for example, to tell us more than our clinical sense, based on thousands of years of experience, should tell us.

I believe we are making a mistake in teaching the medical student of today to overestimate the importance of laboratory methods. We should teach him more about clinical medicine, history taking, physical examination, and less of the laboratory.

The study of blood chemistry is probably of value in certain cases, but I must confess that a competent clinician and a skillful surgeon are in much better position to judge whether the patient is a suitable subject for operation from the clinical aspects of the case than the laboratory man who makes elaborate studies in blood chemistry to determine the precentage of urea, creatinin, etc. I do not mean to decry blood chemistry, because I think it may be of considerable value in certain types of cases.

J. Garland Sherrill: I do not see where there is really any conflict between the laboratory and the clinician. There should be co-operation or team work between laboratory men, clinicians and surgeons. If one pulls in the wrong direction the work is obstructed and no good accomplished. The best way to get results from clinical and laboratory methods is to combine the two in such manner as to prove most useful to both.

At the beginning of my medical career, after reading and study of existing medical lore, I found medicine was by no means an exact science. During the last thirty years many changes in medicine have occurred, and I must confess that laboratory methods have undergone most important changes in this time. Beginning with the time of Koch, of Pasteur and of Lister, modern medicine began and from that time we began to realize why wounds healed without suppuration, we began to know why certain diseases developed, why fermentation occurred, etc., and medicine for the first time was placed on a scientific basis. I recently talked with a layman in this city and was impressed with his knowledge of things in general. He said that until the discovery of fermentation he did not believe medicine was really scientific.

There is no doubt as to the value of careful anamnesis; that is, a complete history of the patient. This is a point which is frequently overlooked or ignored by the physician. In the majority of cases the same history is not obtained during each examination and careful study will bring to light many important facts. The patient should be allowed to recite his complete history in his own way and deductions made therefrom. Certain physicians are making a mistake because they do not devote enough time to the patient and the taking of a careful history. It is the custom to send the patient to one of the numerous laboratories for diagnosis, but this is only an aid to correct diagnosis. The more time is given to the patient and the clinical examination the greater the likelihood of accuracy in diagnosis.

I want to emphasize the value of the Roentgen-ray as an aid in the diagnosis of pulmonary tuberculosis. A patient was recently sent to me by one of the physicians in the state for observation. I looked at the young man with narrow instead of broad vision and examined for disease of the gall bladder, the appendix, etc., but was unsuccessful. I found on carefully inspecting the man's chest that he had some retraction between the first and second ribs on the left side and the second and third ribs on the right side. This was noticeable on each inspiration. He had dullness on one side to a level with the fourth rib and the third on the other. He had no rales, no increased vocal resonance, and none of the usual signs of tuberculosis as we recognize them. I made the diagnosis of tuberculosis inactive. The history was suggestive, but not entirely clear. The man had never had any fever so far as he knew, there was slight loss of weight and the physical signs mentioned. I sent the patient to a competent x-ray worker for examination and he reported tuberculosis inactive, thus confirming the clinical diagnosis which I had already made. I had never before seen a case of tuberculosis with such meager clinical findings.

I recall having made in this hospital (Louisville City Hospital) the diagnosis of acute perforation of a typhoid ulcer, the patient having been brought into the ward shortly before my arrival. It was not a clear cut case of typhoid fever, but the diagnosis was made largely because of the leucopenia present. I must say, however, that the blood count is not always indicative in cases of this kind, but it is one of the best guides we have in acute infections. The leucocyte and differential count should be made as a routine measure.

I want to confirm all that has been said about the laboratory findings in connection with the diagnosis, but the value of careful clinical examination and history must not be overlooked. The student of today should not overlook the study of physical diagnosis and careful physical examination because these are of extreme value. Careful clinical investigation should be made before sending the patient to the laboratory wherever possible. No one should send the patient to the laboratory immediately; he should try to perfect the diagnosis and then have it confirmed by the laboratory. In this way the laboratory is of much value.

An objection has been raised to laboratory findings because of variation in interpretation. For instance, laboratory and clinical data may be placed before three men and all three may arrive at different conclusions. Careful study of the patient by both clinician and laboratory worker, the laboratory findings being revised in case of necessity, should obviate this difficulty and lead to accuracy in diagnosis.

I have known some very excellent clinicians who would never make a positive diagnosis. The most they would say was that it was a case of gallstones, appendicitis, or a perforated gastric ulcer. A man who makes that sort of a diagnosis may be wrong three times, whereas the man who makes one diagnosis can only be wrong once!

I want to say to you that it is the man "behind the gun" who finally determines the diagnosis. Whenever in doubt call some one to help; and the more help you have the more confused you are likely to be, but the opinion of every man is of value, and some point will be suggested which will give a cue to the final diagnosis.

F. C. Askenstedt: Relative to the value of a blood count in differential diagnosis Dr. Baldauf properly mentioned the absence of leucocytosis in malaria. In literature I have seen the statement that quinine when administered will produce a leucocytosis, and in one experiment I carried out a mild leucocytosis was induced. In a few cases of malarial fever under my observation a leucocytosis has been found, and I attributed it to the action of quinine. I wish to ask Dr. Baldauf if he has made similar observations.

The essayist spoke of the value of analyses of the urine, but did not go into details. In his otherwise complete and excellent paper this affords a breach into which I may project myself. Whatever I have to say is directed to the laboratory men from the standpoint of the clinician. As far as microscopical examination of the urine is concerned, there is as good work done in Louisville as anywhere else, but the same cannot be said of the chemical analyses now made. We receive reports from our laboratories with these statements: "Uric acid present"; "phos. acid present," a fact which we well knew before the urine was collected. What we desire to know is if these normal constituents are in excess, and then how much excess; or if they are below the normal amounts, and then how much. Uric acid may not be a poison to the system, but its excess denotes faulty metabolism, and when the organism cannot properly take care of the endogenous uric acid care should be taken not to overburden the katabolic processes by adding an excess of exogenous origin. Usually the laboratory reports include a quantitative estimate of urea—so and so many grams to 1,000 cc. urine—but inasmuch as a twenty-four hours' specimen has not been measured such a statement is absolutely valueless. Laboratory men should insist on receiving an entire twenty-four hours' specimen. Patients have come to me for treatment requesting a tonic for their physical and mental weakness when the main fault was found to be an insufficiency of protein in their food supply; others complain of a poor appetite and are actually gourmandizing, as revealed by the high urea content of the urine. Fifteen to twenty-five gms. urea in the twenty-four hours' excretion seem a normal amount to the average American, although the Germans and the English, who are heavier meat eaters, have a higher standard. Indican is reported as normal or in excess, but when no regard has been taken as to the sp. gr. of the urine or the temperature of the fluids used in the test, but little value can be attached to the statement. It is quite evident that a color reaction of indican which is normal to a urine of a sp. gr. of 1020 would be exhibiting considerable excess if the sp. gr. is only 1010 or less. At present there is a reaction of the profession against the formerly overestimated value of an indican test, but we shall have to admit that excessive indicanuria means excessive putrefaction, usually within the alimentary tract, and that the putrefaction taking place within the body is as dangerous to human health as is that taking place outside when of less than ten days' duration. If putrefaction within the intestine is harmless, then why do we require our health officers to search for and stop the sale of putrid meat or fish occasionally brought to market? From personal observation I can definitely state that putrefaction within the intestine may produce at least diarrhoea or mental depression and headache. Such putrefaction can be largely controlled by reducing the protein content of the food to the minimum necessary to maintain the nitrogenous equilibrium of nutrition, and by substituting milk for meat, fish and eggs. On exposure milk will turn sour, but does not putrify. This is due to its lactic acid content. After milk is ingested this lactic acid likewise protects, until its absorption is complete, the milk proteins against the action of proteolytic bacteria, and thus defer and limit putrefactive changes. To determine urinary acidity by titration with decinormal soda solution is not of especial value, since on standing at room temperature fermentative changes take place in the urine increasing its acidity, but a determination of the ammonia by this method affords a fairly reliable index to the extent of a more or less marked acidosis, inasmuch as the excess of acidity of the body fluids becomes satisfied by the ammonia radicle. An acidosis thus revealed can be materially reduced by a liberal diet of tubers, fruit and fruit juices, whose salts consist of organic acids readily converted into CO_2 and water, and alkaline bases, which are thus liberated for use in the neutralization of acid ions.

Quantitative estimates of these various normal constituents of the urine can be made in about one hour, and I am quite sure that all of us clinicians would gladly let our patients pay the difference in price to obtain these estimates, especially as without them no satisfactory diet list can be made out for our cases.

L. K. Baldauf (closing): Most authors lay particular emphasis on the question of leucopenia in typhoid fever, but as Dr. Boggess has said even in typhoid fever we sometimes have a slight leucocytosis. In typhoid fever particularly in the beginning of the disease the bacilli are in the circulating blood and it makes little difference whether there is a leucopenia or a leucocytosis, a blood culture will settle the question.

Where the typhoid patient is not doing well, frequent leucocyte counts should be made. With a count running between four and five thousand, a rise to seven or eight thousand might mean a great deal, intestinal perforation or gall bladder complication or other complications. Under ordinary conditions a count of seven or eight thousand would not make us suspicious of trouble and would be considered normal.

In regard to leucocytosis following the administration of quinine: My impression is that leucocytosis under such circumstances is not marked, nothing like that noted in severe pyogenic infections. My opinion is that following the use of quinine there is a tendency for the leucocytes to be diminished rather than increased after the first forty-eight hours.

Dr. Askenstedt spoke of a number of laboratory tests which, of course, are important, but when it comes to the question of determining what is the matter with the patient the tests he mentioned are not as essential as some others. In trying to determine whether the pathology present, whether it is organic or functional or a combination, while it may be important to know the amount of uric acid in the urine, it seems to me except in gouty conditions many tests are more important than that determination. It strikes me as sufficient to know that a man has considerable indican in his urine, the exact quantity matters little. The specific gravity of the urine is of greater importance than the amount of indican. If a man has a persistently low specific gravity it means, of course, that certain material is not being filtered through the kidney tissue. A persistently low specific gravity is of as great importance in my opinion as any information which can be obtained by blood chemistry work.

There are perhaps many things for which the laboratory man should be censured. When doing laboratory work he should be on the lookout for big things; he should try to ascertain exactly what is the matter with the patient instead of trying to make fine laboratory determinations. Careful and repeated laboratory examinations should be made where necessary before arriving at conclusions. The reason we are unsuccessful many times, as Dr. Boggess has said, is that a careful history has not been taken and the physical examination has been too superficial. I believe with a properly taken history and adequate physical examinations most diagnoses can be made without the aid of the laboratory. On the other hand, there are certain cases in which the diagnosis cannot be made with the best history and the best physical examination possible. I referred to one or two cases of that kind. Take, for instance, a man with glandular enlargement; he has enlarged glands in his neck, in his groin and in his axillae. In such a case we naturally think of three things, viz., leukemia, tuberculosis and Hodgkin's disease. I venture to say that no physician would be willing without a laboratory examination to state positively that this man has tuberculosis, Hodgkin's disease or leukemia. One must make a laboratory examination and a blood count to eliminate leukemia, and must remove one of the glands to determine whether it is Hodgkin's disease or tuberculosis or both.

I recall a patient who went to Baltimore; one of the clinicians there was uncertain of the diagnosis. The patient was referred to one of the prominent tuberculosis men who made the diagnosis of tuberculosis in the early stages. However, as routine this man requires a Wassermann made which was found to be four-plus. The patient denied syphilis and he had no clinical evidence of the disease, but under anti-syphilitic treatment he became perfectly well within a short time.

When I was in St. Louis a little ragamuffin used to come to our patient department frequently. One night he was brought in with a so-called "acute abdomen," and the diagnosis of appendicitis was made. Later developments showed that he did have an acute abdomen. A blood count was made and it developed that he had 100,000 leucocytes, 99,000 of them lymphocytes. This boy had absolutely no glandular enlargement. It turned out to be a case of lymphatic leukemia without glandular involvement. A few such cases have been reported. He had hemorrhages beneath the peritoneum with infarctions in the spleen which resulted in rupture and hemorrhage into the peritoneal cavity.

It is always well to bear in mind that in most cases a diagnosis can be made by taking a careful history and making a careful clinical examination. We are ofttimes not careful enough in making our physical examination. There are physicians who send their patients to the laboratory for x-ray investigation before making a physical examination. This is something which should be corrected and the laboratory is not to be blamed for making examinations under such circumstances.

Another thing about laboratory examinations is that most people cannot afford to have all the various laboratory investigations made. We should not insist upon unnecessary laboratory investigations when we know people cannot afford them. Of course, many times we may make tests which are unessential and fail to make those which are essential. We should bear in mind the importance of three things, first, a careful clinical history; second, a careful physical examination, and third, the selection of laboratory tests which are necessary. In this way the diagnosis can be perfected in practically every case.

CONTINUOUS UTERINE HEMORRHAGE OF THREE YEARS' DURATION IN A GIRL OF 17 YEARS, CURED BY ONE APPLICATION OF RADIUM.*

By D. Y. Keith, Louisville.

Every physician present has had to deal with persistent uterine hemorrhage in the adolescent. You have wished many times for a specific to control this symptom which is occasionally dangerous and very often alarming.

Novak says: "The most frequent **histological** findings in these cases is a condition called hyperplasia of the endometrium. This is characterized by an overgrowth of both the epithelium and stromal elements of the endometrium with the production of a perfectly distinctive histological pattern which makes its recognition easy by the means of the microscope.

Hyperplasia is not a primary disease of the endometrium, but it is secondary to an endocrine disturbance of the ovary. This has not been exactly determined."

The subject of our report was first seen by us on April 5, 1921, being referred by Dr. Irvin Abell. Her family history was negative, both father and mother are living and in fair health. Has no brothers or sisters.

Personal history: Ordinary disease of childhood. Psoriasis on hands, face, and scattered over the abdomen and anterior chest are many psoriatic spots. These have been under treatment since she was six years of age. No other serious illness or chronic affections.

Menstrual history. First menstruration at age of 13 years. Next menstruation was eight months later, very free, lasting several weeks, then stopped a few days and began again, until finally menstruation became almost continuous with only a day or two occasionally that no flow was present.

She consulted Dr. Abell in June, 1919, stating she had not been without flow more than two or three days since April, 1918. On June 20, 1919, a curettage, ventral suspension and appendectomy were performed. An unusual quantity of endomentrium was removed. The uterus was acutely retroflexed. She experienced a normal menstruation in July and August; in the latter part of August flow again appeared, was slight but constant, being present daily.

Medication: In October, 1919, the patient was given glandular extracts twice daily and also calcium lactate.

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*Read before the Jefferson County Medical Society.

In February, 1920, a course of thromboplastine was given hypodermically. This was repeated on April 4 and 5, 1920. Great benefit was obtained from the first course. None from the second.

Two weeks later she was given Squibb's thrombo-plastine intra-uterine. Was free of flow for one month. Also complains of shortness of breath. Pulse 86. Blood pressure 120-65. Lungs negative. Pelvis negative. Eats and sleeps well with gain in weight.

In January, 1921, was again given a course of glandular extract without results.

She was then given fluid extract of ergot, hyoscyamus, sodium bromide with glycerophosphates, which she was unable to take on account of nausea.

The following blood examinations are very interesting and instructive:

June 19, 1919.

Hemoglobin	85
Erythrocytes	3,650,000
Color index	1
Leukocytes	7,800

April 15, 1920.

Hemoglobin	85
Erythrocytes	4,300,000
Color index	0.9
Leukocytes	6,000

January 17, 1921.

Hemoglobin (Dare)	65
Erythrocytes	3,880,000
Color index	0.8
Leukocytes	7,400

April 5, 1921.

Hemoglobin	65
Erythrocytes	4,420,000
Color index	0.7
Leukocytes	7,400

Examination: A well developed girl of 17, quite large for the age. Weight about 120 pounds. Skin shows many psoriatic spots on face, hands, anterior chest and abdomen. Heart, chest, abdomen and pelvis negative.

On admission to hospital April 11, 1921, she stated she had not had a day in fifteen months that a menstrual flow was not present.

At 3:00 p. m. on April, 1921, under gas-oxygen anesthesia four needles containing 50 mg. of radium screened with a brass screen of 1 mm. thickness were introduced into the uterine cavity and allowed to remain one hour and forty minutes. No curettage was performed. The patient returned to her home the following morning.

No menstrual flow was present for two weeks when she experienced a menstrual period of six days duration, quite free in quantity, preceded by headache and mild uterine cramps for twenty-four hours. Since the application of radium she has experienced five normal menstrual periods lasting from four to six days. Our last report from her was September 12, 1921, in answer to several questions, none of which are of any interest except question No. 8. "Have you experienced very much pain at any of your menstrual periods since the application of the radium?" Answer: "More than previous since the use of radium, but not much yet; only pain is at the end of period."

Her general health is excellent and in her letter she states she is hard at work in school and "feels she could turn the world over if necessary." One menstrual period has been delayed two weeks, otherwise normal.

Comment: Practically all authorities agree that the most brilliant results in the use of radium are seen in uterine hemorrhage in which no gross pathology can be found in the pelvis.

The nearer the menopause the easier the cure. In the adolescent patient a cure is to be obtained if possible without producing a permanent menopause. Many case reports are found in the literature where pregnancy has occurred after the judicious use of radium. We feel no hesitancy in saying we believe or know no sterility has been produced in this patient. What other medication have we that could approach this result?

We were very much surprised in obtaining a cure with so small a dose. Our expectations were to repeat the dose in six weeks if necessary and informed the mother at least three doses might be necessary.

We wish to thank Dr. Irvin Abell for his usual good history and excellent notes on the case since her operation, for without these it would have been impossible to have given an accurate report. We wish also to thank Dr. J. L. Toll, of Lawrenceburg, for his invaluable support and encouragement he gave this young lady during her first few menstrual periods after the radium application.

DISCUSSION:

Irvin Abell: I would like to congratulate Dr. Keith on the excellent result he obtained in the case of metrorrhagia. When I first saw the patient she had been under the care of a physician in her home town practically ever since the inception of menstruation, and during that period he had given her various remedies internally including ergot. I suggested that the condition was probably one of hypertrophic glandular endometritis which was secondary to the retroversion, and as no benefit had been secured from medical treatment, it was thought wise to do a curettement and correct a retromisplacement by a suspension. Immediately following this procedure there was marked improvement, but she had a relapse and was then given internal glandular secretions with some improvement, but she again had a relapse. The internal glandular secretions first administered were: pituitary, thyroid and suprarenal. Later she was given the five internal secretions: pituitary, suprarenal, thyroid, mammary and corpus luteum.

When I referred the patient to Dr. Keith I did so with the suggestion that he try light exposures, presuming he would use the Roentgen-ray. However, I deferred to his recommendation in the matter and radium was employed. He stated he was fearful that the Roentgen-ray might produce the menopause as the dose could not be satisfactorily regulated. Personally I had not known until then that radium had been used to control hemorrhage in young women, but was familiar with its action for that purpose in older women.

The hypertrophic glandular endometritis yielded to one application of radium, as stated by Dr. Keith, and he is to be congratulated on securing such an excellent result. Judging from the condition of th young lady at the present time certainly no harm was done by the application of radium.

I wish Dr. Keith would be good enough in his closing remarks to give us his ideas as to the therapeutic effect of radium in cases of this nature. It has been my impression that radium exerted its effect on the Graffian follicle and artificial menopause might result from its application, and that in using this agent for the control of hemorrhage in young women there might be danger of injuring the ovary itself.

D. Y. Keith (closing): Answering Dr. Abell's question: There is certainly some effect on the endometrium from the application of radium, and there is also some effect on the ovary.

There have been written many most interesting and instructive articles on the therapeutics of radium in connection with the generative organs of women. Wilkins and Gervin a short time ago read a comprehensive paper on the subject, and their theory, which is based on the work of a great many observers, is that radium acts on the corpora lutea which are not yet ripe. The action of radium probably inhibits the growth of these corpora lutea and in that way cause cessation of menstruation. If enough radium is not used to cause complete recession of ovarian function good results are not secured; that is, in the young individual cessation of menstruation is not produced. Next to the spermatozoa and ova the ripe Graffian collicle is the most susceptible of any tissue to the action of radium.

There are seven or eight cases reported in which pregnancy has occurred in young women following the use of radium for the control of uterine hemorrhage. The best results have been secured from small doses of radium in young subjects without causing a cessation of menstruation. In older women larger doses may be required to competely relieve the menorrhagia and menstration is stopped permanently. We approached this case very cautiously and only a small dose of radium was used. We were much surprised that the hemorrhage ceased after one application; we were quite sure two or more treatments would be required.

EPITHELIOMA OF FACE AND EAR.*

By William J. Young, Louisville.

The patient before you is a male, aged 61 years. Dr. Sherrill asked me to bring him before you for advice. About eleven years ago an epithelioma was removed from the lower lip by the usual surgical method with an apparently perfect result.

It will be noted that this man now has a large ulcerated area along the angle of his jaw, extending to the lobe of the ear. The duration of this ulceration I do not know. The maxillary bone is not involved, the skin is freely movable, but a considerable area is involved in what appears to be a carcinomatous process.

Dr. Sherrill had the patient come before you for an opinion as to the best method of treatment. He has requested that we consider what would give the patient the best chance; whether it would be better to give this man radium treatment alone, or, as I have suggested, whether it would be better to block all around the entire jaw, in the neck and supra and infraclavicular spaces, with the roentgen-ray prior to the institution of any other treatment. In other words, apply the roentgen-ray entirely around the involved area, then remove as much of the lesion as possible surgically, and sink radium into the remaining mass. The deeper structures are not involved unless it be just at the orifice of the ear; of course, the lower third of the ear would have to removed.

Personally I believe the man would be given the best chance by first blocking the possible points of metastasis with the roentgen-ray, then removing the mass by wide dissection, followed by the application of radium.

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*Clinical report before the Louisville Medico-Chirurgical Society.

DISCUSSION:

Louis Frank: I can see no reason for using the roentgen-ray as a preliminary measure in the case before us unless radical excision is contemplated. Personally, I believe this particular case would be best treated with radium alone, and under such treatment radium would be used widely and would block. By the so-called blocking process with the roentgen-ray no additional assurance is given that the growth will not recur even after wide excision. By the plan suggested of inserting radium in the remaining mass a wide dissection would have to be done just the same. If the man is to be treated by radium there is, as we have said, nothing to be gained by blocking the tissues or attempting radical removal by the knife. On the contrary I think any attempt to excise the growth other than most widely would be a detriment. If there was deep infiltration, which there is not in this case, then I would say excise the growth as widely as possible and treat with radium as has been suggested. We have successfully treated a number by that plan. I would repeat, however, that in this particular case I think the treatment should be with radium alone.

Wm. J. Young (closing): I am at a loss to understand Dr. Frank's objection to blocking off the possible points of metastasis with the roentgen-ray in this case. I would advise that plan in any case of this character. Even in epithelioma of the lip, where I am going to treat the case with radium, I would certainly attempt to block the lymphatics beforehand. It is absolutely impossible for anyone to say with any degree of certainty just how far the lesion has extended, and blocking the possible points of metastasis can do no harm and it may do good. It is questionable whether we can effect a cure in cases such as the one before us irrespective of what we may do, but in all such instances I believe the patient is given a better chance if points of metastasis are blocked with the roentgen-ray before any other treatment is instituted. It must be remembered that the use of radium may have a similar effect as that produced by the knife in some cases; that it may stimulate the lesion if the dose is inadequate to kill the cancer cells. No one can say just how far the disease has extended in a case of this kind.

COMPLICATED ANO-RECTAL FISTULA —CASE REPORT.*

By Granville S. Haines, Louisville.

Mr. R. L. V., white, aged thirty-eight years. Family history negative. Height, five feet and nine inches; weight, one hundred and sixty-five pounds.

The patient had generally been well and healthy with the exception of tonsilitis and "rheumatism." He said that his rheumatism began fourteen or fifteen years ago, and that he had made five trips to different health resorts with only temporary relief. His teeth had been x-rayed and two or three extracted without benefit. His tonsils were removed in 1910, but the operation was imperfect, and they were completely removed in 1920. There had been noted slight improvement in his rheumatism since last tonsil operation.

In the autumn of 1917 his right knee became so affected that he could walk only with difficulty. He stated that "at times his knee would catch and he would fall unless he grasped something for support." His knee was examined by the Roentgen-ray and operation advised for removal of a floating cartilage. This he declined and later consulted a Louisville surgeon who advised him to use a rubber knee cap and prescribed local treatment. This appliance gave considerable comfort and later he was so much improved that the "locking," as he expressed it, almost disappeared, but pain continued. Patient said his digestion had always been fairly good, but there was a tendency toward diarrhea.

About twenty years ago an abscess developed on the left side of the rectum which opened spontaneously and the patient was operated upon by another surgeon for the resulting fistula. He was apparently well after this until fourteen years later when another abscess developed in the same region. This also opened spontaneously, and discharged and closed at intervals until August, 1921.

Examination disclosed an external opening about one and a half inches posterior to the anal margin and just to the left of the median line, also an internal opening through the posterior anal wall. There were three or four skin tabs and the internal anal tissues were diseased.

The patient went to the Norton Infirmary for operation August 25, 1921. Blood examination and urinalysis negative. The fistula was incised, skin tabs removed, fistulous wound and diseased anal tissues lightly cauterized.

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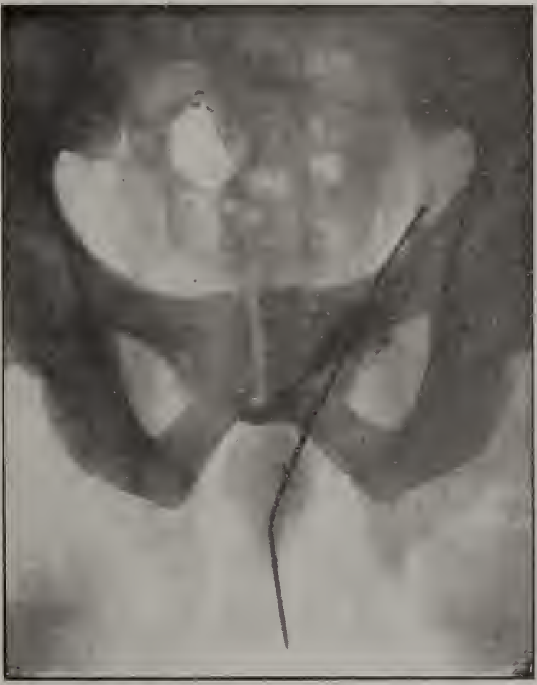
*Read before the Jefferson County Medical Society.

August 29 his temperature rose to 103 2-5° F. and ranged between 101° and 102° F. until the morning of the 31st. He remained fairly well until September 24, when he had a chill and his temperature again rose to 102° F. The next morning his temperature was normal and remained so until he was dismissed. From September 1st to the 25th the patient seemed to be doing fairly well, but was disposed to remain in bed most of the time, being disinclined to walk about. October 2 he was discharged from the hospital and went home. November 19 we discovered another very small opening in the unhealed wound at the anal margin, just to the right of the posterior median line, into which a probe could be inserted two or three inches.

November 29 the patient returned to Louisville at which time a probe could be introduced into the sinus upward six inches, or to the level of the right hip joint and apparently approached it within three-fourths of an inch. There was a cavity of considerable size almost transverse in direction below the level of the hip joint. This was plainly shown by the Roentgenogram. Bulging could be felt on the left side with the finger in the rectum after bismuth had been introduced.



Later bismuth was introduced into the sinus under considerable pressure. The patient experienced much discomfort in posterior aspect of left leg extending as far downward as the knee. He went home and had a chill, that night his temperature rising to 102° F. His physician called me over the telephone and on my advice the patient again returned to Louisville. He went to the hospital and remained three days for further observation. The pain finally subsided and he went home. Since that time he has reported to my office for an additional injection of bismuth, a small amount only being used. At the present time the patient is free from fever, has no pain in his right leg, and the wound has entirely healed.

One of the most conspicuous features in the history of this patient is that there was never any discharge from the deep sinus which extended upward almost to the hip joint. My reasons for reporting the case are:

(1) To call attention to the fact that internal openings due to rectal abscesses never occur through the rectal wall unless the mucosa is diseased or weakened by the presence of stricture, cancer, ulceration, etc.; the pus always burrows through the anal wall and not the wall of the rectum.

(2) That pus may burrow extensively upward around the rectal wall and invade cellular tissue above the brim of the true pelvis.

(3) That there is a type of infection which destroys cellular tissue without the production of pus.

(4) That the disease may cause dysuria if the parts involved are near the urinary bladder, and that pain may be reflected to the lower extremities, the back or other adjacent areas.

(5) That the most successful way to treat these extensive sinuses extending high upward is by the injection of bismuth paste.

DISCUSSION:

Bernard Asman: The report made by Dr. Hanes is so complete that little can be said in discussing it. Ano-rectal abscesses sometimes perforate in unsuspected directions, the resulting fistulous tracts and their various branches oftentimes being troublesome to treat and healing delayed.

The pus from intra-mural abscesses may burrow either upward, downward, or around the rectum and from sinuses which are particularly difficult to handle, and the same is true of abscesses in the pelvi-rectal space.

The point made by Dr. Hanes is particularly interesting and important that these abscesses, regardless of their origin, rarely perforate the rectal wall. The pus burrows downward or in the direction of least resistance around the rectum, and usually finds its way into the anal canal between the two sphincter muscles.

As to the introduction of bismuth paste: Personally my experience with bismuth has not been such as to cause me to recommend it or continue its use. One of the greatest difficulties consists in its proper introduction. Unless great care is exercised too much force may be used and the paste will make its way into the ischio-rectal fossa, or the tissues above, depending, of course, upon the direction in which it is introduced.

I recall a patient coming under my observation six or eight years ago who had an extensive fistula resulting from a pelvi-rectal abscess. The pus burrowed downward through the levator ani muscle and into the ischio-rectal fossa finally perforating the buttock. A surgeon undertook to bring about a cure by introducing bismuth paste through the external opening. He evidently must have used a large amount of the paste and considerable force, because nearly a year afterward, when the patient came to me, he complained of severe pain and discharge from the original opening and also another opening which had ocurred after introduction of the bismuth. To make a long story short, in endeavoring to dissect away the fistulous tract a collection of bismuth paste the size of a goose eeg was found in the ischio-rectal fossa. The most natural conclusion is that it was introduced under considerable force and too large a quantity of paste used. However that may be, experience has taught me that the best way to handle these cases is by thorough dissection of the fistulous tract and its branches and the introduction of hyperchlorite, or Dakins solution.

I prefer the former because it is more easily prepared than the latter and is equally effective. It is used in five per cent solution after dissection has been made as thorough as possible.

Where a fistulous tract extends upward the distance shown in the case reported by Dr. Hanes great care must be exercised to follow numerous sinuses and be certain of dissecting all of them. This is followed by daily irrigation, or introduction with a proper syringe of hyperchlorite, or Dakin's solution. Where the operative wound is large and open I perfer spraying it with the solution, having the patient assume an exaggerated knee-chest position so the fluid will penetrate the deepest parts of the wound. Under this treatment there soon results healthy granulating tissue, rapid diminution and soon complete absence of pus and the wound heals promptly.

If there has been much destruction of muscular tissue, particularly of the muscles which control the anal outlet, a secondary plastic operation is necessary for the restoration of proper function.

John R. Wathen: I would like to ask Dr. Hanes if he does not think that there is a possibility of this fistulous tract leading from an abscess due to a ruptured diverticulitis of the large intestine? I have noticed several such cases reported lately in foreign literature.

Granville S. Hanes (closing): I will say, in answer to Dr. Wathen's question, that I do not know, and will answer it again by saying, "I do not think so." There was nothing to indicate perforation from the peritoneal cavity. The pus was outside the cavity and extended above the brim of the true pelvis, and I doubt if the origin of the trouble was a ruptured diverticulum or appendix. The fact that the patient had a fistula nearly twenty years ago would indicate that he has had trouble from that time until the present.

I tried to make it plain in my report that this man had "rheumatism" for a long time, and that he had little ambition although apparently well nourished. My impression is that he had a peculiar type of infection around the rectum, especially on the right side, for several years with gradual destruction of the adjacent tissues. The second opening which I have mentioned was so small that it was not discovered until the wound had almost healed.

As to the use of bismuth paste: Bismuth should not be used in any cavity that is actively suppurating as it would do no good. It is best adapted to cavities such as I have described where there is little or no drainage. In the case reported drainage was scarcely noticeable, the dressing being only slightly stained after twelve hours. It is in such cases that bismuth can be most successfully used. It is important that bismuth be introduced very slowly. My plan is to inject a little bismuth under moderate pressure then wait for a few minutes, repeating the procedure until the required amount has been introduced. This allows distribution of the bismuth into every sinus. Where fluid is used if there is a cavity six inches long, as in the case reported, considerable pressure is necessary to make it penetrate every sinus. In cases where there is little or no drainage I still believe bismuth is the safest agent to employ.

Acute Dilation of Heart.—A man about 40 years of age dropped dead. He was engaged in hunting coyotes, in the process of which he dug pits and blasted with nitroglycerin. The salient features of the necropsy in the way of anatomic changes found by Menne were: Acute dilatation of the chambers of the heart, marked hypertrophy of the musculature of the heart, pronounced obliterative sclerosis of the posterior coronary artery; marked senile and syphilitic arteriosclerosis with slight supervalvular aneurysm formation, chronic interstitial myocarditis, marked diffuse nephritis (arteriosclerosis) marked emphysema of the lungs, edema of the brain. The syphilitic lesions are ridgelike and are most pronounced in the first portion of the arch. The opening of the posterior coronary artery could not be identified.

GLIOMA OF THE CEREBRUM IN A CHILD: REPORT OF CASE.*

By H. H. Hagan and Stuart Graves,
Louisville.

The patient, a little girl, six years of age, was referred to Dr. Hagan by J. C. Jones, and admitted to the Children's Hospital August 8, 1921.

Family History: Father, age 31; mother, aged 26. Both living and well. Two brothers and one sister are normal, healthy children. Mother has not had any miscarriages. No tuberculosis in the family.

Personal History: Always in good health. Has not had any of the diseases of childhood.

Present Illness: The parents attributed the onset of the present illness to an injury by a fall about three months ago, and feared she might have a fracture of the skull. However, in taking history, parents recalled that about one year ago the child had complained of frequent headaches, and during these would rub right side of head.

The night of January 1, 1921, parents were awakened and found child shaking as if in a hard chill. This continued several minutes, and she then regained consciousness. Ten minutes lated had a similar attack, which lasted five or ten minutes. Convulsion was not localized, according to observation of parents. Eyes rolled back, did not bite tongue, neither did she void or have bowel movements. No other similar attacks.

In April or May, 1921, child fell backward, striking head against corner of chair. No cause for fall. Did not become unconscious. Wound in scalp bled profusely at time, but healed promptly. June 6, 1921, child was seen by a physician for first time. She complained of a severe headache which had been practically constant during the days for four or five weeks, and would increase in severity at frequent intervals during the day. Patient fairly comfortable at night. About one month later (July, 1921) developed a weakness of left arm and limping of left leg. Vomited. Later parents noticed eyes "crossed," and thought left involved more than right. About August 1st some swelling of face was observed. August 4th child developed coma, but next day was as bright as usual and asking for food. However, following day coma was again present and child had continued in this state when seen by Dr. Hagan August 8. Had not taken any food and very little water during the two days prior to this date.

Physical Examination: Child of normal size. In coma. General examination of heart, lungs and abdomen negative. Pulse 64, temperature 98.2. Biceps and triceps reflexes present without exaggeration. Right knee jerk could not be obtained. Right ankle jerk present without diminution or exaggeration. Left knee jerk present, but not exaggerated. Left ankle jerk not obtainable because of contraction of left ankle in extension. No Babinski, Craddock, Oppenheim or Gordon reflex on either side. No ankle clonus on right. Clonus could not be tested for on left because of fixation of left foot in extension. There was no resistance to passive motion in any extremity, but flaccidity was present to a marked degree in left upper extremity. Patient occasionally showed automatic associated movements in upper extermities, in which left shoulder and elbow certainy took part and left wrist less certainly. Slight weakness in muscles of left side of face. Eyelids closed. Eyes moved in co-ordination involuntarily. Right pupil widely dilated, that of left about three or four mm. in diameter. Neither showed reaction to light. Eye grounds, veins swollen, disks markedly choked, degree of choking not being measured. Sensory changes could not be determined. Wassermann negative on blood of both child and father.

X-ray of head (Dr. Keith.) No fracture. Shadow of slightly increased density on right side, and perhaps slight separation of suture lines.

The day following admission to hospital temperature, pulse and respiration had increased. A right ventricular puncture was done to relieve intra-cranial pressure, hoping that further examination with child in better condition would allow more definite determination of the location of the tumor. Two ounces or more of dark brown, hemorrhagic, viscid fluid was obtained. Following the puncture there was marked improvement in respiration and circulation, but the child did not regain consciousness. The next morning the condition of the child became suddenly worse, and she died within a few minutes.

The brain was removed and taken to the pathology laboratory of the University of Louisville Medical School, where it was examined by Dr. Graves, whose gross description and microscopic diagnosis follows:

Specimen consists of brain preserved in formalin. In right parietal region of cerebrel cortex there presents a neoplasm, circular in outline, soft, protruding, varying in color from reddish gray to bluish purple. It is covered with pia-arachnoid and extends from post-central gyrus backward 7 cm. and from angular gyrus upward about 7 cm. to a point 25 mm. from supero-medial margin.

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*Read before the Jefferson County Medical Society.

Posterior portion of circumference is sharply demarcated, but anterior portion of protruding tumor is overlaid with cortical tissue. The usual incision from medial surfaces into lateral ventricles reveal normal contents. The right incision passes through a parietal tumor which is soft, broken down and of mingled shades of red and blue. At this point specimen is put away in 10% formalin for further fixation.

After fixation horizontal sections are made at different levels, beginning about 1 cm. below posterior extremity of Sylvian fissure, exposing basal ganglia and internal capsule, which are not involved grossly. In this level the tumor lies external to the basal ganglia and involves only white matter. At a level 17 mm. above horizontal incision is revealed a soft, necrotic, fairly sharply outlined growth, dark red in softer portions and dull grey in firmer portions. Its horizontal diameters are greatest at this level, being 80 mm. in antero-posterior line 55 mm. in cross line, extending to periphery of lower edge of parietal lobe. Anterior limit of tumor at this level extends just to the white matter of the post-central gyrus.

The next incision, about 17 mm. above, reveals diameters respectively 70 and 65 mm. Tumor here extends from parietal cortex to point about 8 mm. from midline.

The examination reveals a neoplasm about 80x65 mm. in greatest antero-lateral and cross diameters, necrotic and hemorrhagic in greater portion; not encapsulated, but fairly sharply demarcated; not involving basal ganglia or internal capsule, but infiltrating the cortical fibres radiating from the parietal cortex and apparently involving the white matter just as it dips downward toward the anterior portion of the posterior limb of the internal capsule.

Microscopical diagnosis: Glioblastoma (Glioma).

DISCUSSION:

T. F. Hale: This is a rather unsatisfactory case to discuss, because of the lack of complete corelation between the clinical and the post-mortem findings. Of course, it was apparent there was great increase in intracranial pressure, very likely due to tumor obstructing ventricular drainage, and it was for that reason the ventricle was drained, but necropsy revealed a tumor the location of which was unsuspected. Why? The condition of the child at the time of examination forbade anything but gross findings, and the facts on which a diagnosis of parietal tumor is to be made could not be elicited.

The sensory manifestations produced by cerebral tumors have been studied mainly by Head and his co-workers, who have reported characteristic and constant findings. During the spring of 1917 I happened to be associated with Gordon Holmes in one of the British hospitals where we saw a great many cases of parietal injuries. (Holmes was one of the men associated with Head in his work on this subject.) He would often make the diagnosis of a parietal lesion on the basis of certain findings. These findings are not striking; the symptoms are not pronounced as is the case with lesions in the Rolandic area, for instance, but they are usually unmistakable. While these signs are sensory, they are not signs of complete defect in sensation; they usually consist mainly in some loss of the sense of position and passive motion; perhaps not in the whole extremity; only a finger or two may be involved. The findings are usually irregular; there is loss of the sense of motion; loss of the ability to recognize objects and to localize points of touch or to discriminate well between degrees of cold and heat. In addition to the sensory changes there exists in many of these cases hypotonia of the limb involved, also some weakness and defect in use of that limb.

What sensory changes did we have in the case reported? We do not know. The child was seen by one or two other physicians; there were no exaggerated reflexes; attention was called to this particularly. Did we have here an apparent paralysis of the left side, but actually a hypotonic dysprasia, due to the parietal lesion? We cannot say definitely.

Dr. Graves mentioned the fact that this tumor apparently extended into the medullary substance, coming from the Rolandic area; and it may be possible that the child had an actual paralysis of the left side because of involvement of the coroneal fibers from the Rolandic area.

One point I particularly desire to mention is: There is a general belief that marked increase of intracranial pressure is due to some obstruction to ventricular drainage, which would cause such gross signs as headache, vomiting, choked discs, etc., but here we have a tumor which apparently did not cause any obstruction of the Sylvian way or interfere seriously with ventricular drainage, yet caused considerable pressure in consequence of its size. The tumor was a very large one, extending from the cortex into the body of the ventricle.

The fluid which was removed from the ventricle suggested hemorrhage into the ventricle; the fluid had undergone a certain amount of change, and it may well be that obstruction did actually occur in consequence of the viscid fluid which could not find exit.

The idea of a cortical tumor was not adhered to because of the absence of focal symptoms. We believed the tumor must be subcortical and certainly situated above the level of the oculomotor nuclei in the brain stem, but we could not be certain just where. There was no evidence at our disposal to localize it more accurately. We thought it might be a small tumor situated at about the upper level of the brain stem exerting pressure on the Sylvan way and involving the fibres of the third nerve where they emerge. This was based on the assumption that the right eye was the one affected.

The necropsy showed a parietal tumor which we were unable to localize accurately on account of our inability to discover the sensory changes shown by such tumors, the child's comatose condition making an examination for such changes impossible.

THE OFFENDING TONSIL.*

By W. T. Bruner, Louisville.

The tonsils have been accused of being responsible for practically every disease known to medical science, from a simple coryza to placenta previa, including the lame, the halt and the blind. Some of the most eminent diagnosticians in this country are now claiming that eighty per cent of the diseases of the human body are due to causes located above the collar bone. While that statement may be overdrawn, yet we are not wholly unprepared to accept a statement like that since the question of focal infection has received so much attention. Much has been written of late upon the subject of focal infection; in fact, one can scarcely search the pages of a medical journal without finding some reference to this important subject.

While we may find the seat of focal infection in the ear, the nose and accessory sinuses, the teeth, the gall bladder, the appendix, the uterus and its appendages, and the prostate gland, yet we find it more often in the tonsil than elsewhere. Situated as these organs are anatomically, and because of their peculiar structure, this is not strange with our present knowledge of infection. Practically all observers agree that the tonsils are portals of systematic and glandular infection. That there exists an open pathway for infection through the tonsils, at least as far as the tubercle bacilli are concerned, has been demonstrated. A careful study of the anatomy of the tonsillar area will reveal a very close association with the lung through both the lymphatic and vascular circulation. That there is such a condition as latent tuberculosis of the tonsillar ring which may continually infect the lymphatic glands of the neck, as well as the deeper structures in the thoracic cavities seems to be established. The toxemia from tonsil infection is often entirely out of proportion to the amount of structure involved. It is well known that in many cases of septic arthritis osteomyelitis, the disease is ushered in with an acute tonsilitis. Rheumatic fever, acute endocarditis, septic thrombo-phlebitis, pulmonary gangrene, and other infective conditions have their initial lesions in the tonsils. How are we to determine when the tonsil is at fault?

I cannot subscribe to the idea of some that no tonsil is a good tonsil and therefore should be removed forthwith. It is by no means, however, an easy matter in every instance to determine the innocence of a tonsil, and yet I think we should regard every tonsil that comes under our observation as innocent until we can find a satisfactory reason for suspecting its guilt. It is not always imperative that we should discover positive evidence that a tonsil should be removed; it is sufficient in some cases to find circumstantial evidence of such a character as to warrant the conclusion that a tonsil should be condemned. Very often the chief indication for the removal of the tonsils is the existence of some form of systematic infection. This indication may even exist where the local evidences of tonsil disease are not very marked. A superficial examination of the tonsil will often lead us astray, as many diseased tonsils, on inspection, appear to be normal. A casual inspection of the throat often fails to give one any idea as to the size of the tonsils, for they may be deeply imbedded and hidden behind the pillars of the fauces. We cannot judge the tonsil by its size, as a very small tonsil may cause much trouble. Singers and public speakers, with a troublesome sub-acute laryngitis, and whose tonsils are very small and fibrous, are often greatly benefited by the complete removal of the tonsils.

The most dangerous tonsils are the small phymosed and submerged, which can only be found by close inspection. The large protruding tonsils, while they mechanically interfere with respiration and may be septic, yet they are partially drained by each act of swallowing, whereas the imbedded tonsils, being inclosed by the pillars of the fauces, retain all that they receive and like a sponge may become saturated with all sorts of bacteria. In this kind of a tonsil, we have an excessive absorption of poisons with diminished elimination. When we are in doubt about the condition of the tonsil, we can seldom, except, of course, when the tonsil is acutely inflamed, depend upon the laboratory to help us out, for normal throats contain many organisms and when cultures are taken from the surface of the tonsils or from the crypts we get a multiplicity of organisms, and it is often difficult to tell which predominates, so it is a question whether any data of diagnostic value can be obtained in this way.

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*Read before the West End Medical Society, Louisville.

The treatment of tonsils that deserves attention except when acutely inflamed is surgical. The x-ray has been used to reduce the size of hypertrophied tonsils and some have reported good success. The same results have been claimed from the use of radium. As to the permanency of relief from these non-surgical measures, no one can give a positive statement. Tonsillotomy, which was practiced quite extensively a quarter of a century ago, is now condemned by all operators. Many failures of life are due to unfinished tasks. Tonsillotomy is an unfinished work and is not good surgery. Tonsillectomy is the only operation that should be sanctioned. The tonsil operation, when properly done, is by no means as simple as some would have you believe.

Many extravagant statements have been made with regard to the tonsils. There are some who deny that the tonsils have a function to serve, except to provide a habitat for a large variety of pathogenic micro-organisms which may at any time invade the system. One of the leading laryngologist of London is reported to have said that the principle indication for the removal of the tonsil was that if you did not do it some one else would, and there are others who advocate the removal of tonsils for the same reason that the general surgeon removes the appendix when he opens the abdomen, even though the appendix may be healthy at the time. It is said that an eminent laryngologist once made the statement that "here are two tonsils, and here is a doctor that needs $50.00; out go the tonsils." I believe the tonsils have a definite function, and that they are needed in the economy of nature, and the question therefore should be, will the patient be better off without his tonsils, or are they doing more harm than good? I am of the opinion that it is better to err in removing a healthy tonsil than to permit a diseased tonsil to remain in the throat. Troublesome hemorrhage is likely to occur in tonsillectomy and complication may arise from the anesthetic whether it be a general or local. After the removal of the first tonsil, the hemorrhage should be controlled before any attempt is made to remove the other one. This can be easily done as a rule by placing a sponge in the tonsillar fossa and holding it there by firm pressure for a while. This procedure may be repeated if not successful the first time. If bleeding continues, search should be made for the bleeding vessel which should be grasped with the forceps and twisted or tied off if necessary. The tonsil fossa is then mopped with tincture iodine, one part to three parts comp. tinct. benzoin. This combination is both antiseptic and astringent and will often check hemorrhages from the smaller vessels and from the venus plexus in the infra-tonsillar fossa which often gives us trouble. The same procedure is carried out after the removal of the second tonsil. I have used thromboplastin in several cases with success.

What is the best anesthetic to use in tonsillectomy? This question does not apply to young children, for it is necessary to use a general anesthetic for them and also for older people who cannot be controlled under a local. I generally use a 1% solution of novocain in local anesthesia. In a carefully prepared article with report of cases by Fisher and Cohen in a recent number of the Journal A. M. A., entitled "Pulmonary Abscess in Adults Following Tonsillectomy Under General Anesthesia," the writer states seventy-four cases of pulmonary complications, many of them fatal, have been reported in medical literature. Five of these cases have come under their personal observation. From a study of these cases with the reports on the others, these observers have concluded that tonsillectomy in the adult is safest when done under local anesthesia. In the same number of the Journal A. M. A., is a report of the committee appointed by the nose and throat section of the A. M. A. in local anesthesia which records forty-seven fatalities, following the use of local anesthestics in nose and throat work.

Small disseminated deposits of lymphoid tissue are often seen in the pharynx and sometimes they are seen to appear or become larger after tonsillectomies. Bordley, of Baltimore, mentions the frequent rather marked hypertrophy of the lymphoid structures in Waldeyer's ring, i. e., lingual tonsil and lymphoid masses behind the posterior faucial pillars, and the frequent filling in of the tonsillar spaces with lymphoid masses, free from crypts, after a complete enucleation of the tonsils. He claims this strongly suggests nature's effort to give to the economy a needed substance which surgery has removed. To my mind it also suggests to the patient that the surgeon has not done his work well.

The following cases illustrate some of the conditions that have been benefited by the removal of the tonsils:

Case I.—Mrs. S., age 32, December 17, 1920, treated her for acute tonsillitis. At this time she complained of soreness and aching in most all the joints. She gave a history of repeated attacks of sore throat. Statement of attending physician: Has had acute inflammatory rheumatism, involving most all the joints. Examination January 3, 1921, prior to operation: Urinalysis, negative; Wasserman, negative; hemoglobin, 75%; leucocytes, 11,650; x-ray of teeth, 8 abscessed. Tonsillectomy done under local anesthesia. February 25, 1921. No arthritis. Says feels good generally.

Case II.—J. T., female, age 20. Symptoms: Tremor, palpitation, tachycardia, dyspnea, exophthalmus, and slight enlargement of thyroid gland, frequent attacks of tonsillitis, frontal headache. All these symptoms disappeared after tonsillectomy.

Case III.—L. A., female, age three years. Sympptoms: Upon walking a square would stop to rest, saying she was all out of breath; mouth breather.

Examination: Urinalysis showed the pressence of pus with numerous leucocytes and squamous epithelial cells. Leucocyte count, 18,800. Tonsils and adenoids were very large with pus in left tonsil and caseous material in right. Tonsils and adenoids were removed under ether. Symptoms all cleared up promptly following operation.

Case IV.—C. G., male age nine years. Has always been frail and delicate and much under treatment of physician. Marked glandular enlargements on both sides of neck.

Examination: Chronic tonsillitis and enlarged adenoids, toxic nephritis, anemia, deficiency of hemoglobin, dental caries, with a history of frequent colds, sore throat and epistaxsis. Urinalysis, albumin trace, a few hyaline casts. Wassermann, negative; teeth in fair condition. The tonsils and adenoids were removed under ether. A marked improvement in every way followed the operation. Fearing a troublesome hemorrhage from the operation in this case a blood clotting test was made. Time, 1 minute and 45 seconds.

Case V.—J. S., male, age 27 years; sore throat often for a number of years. Refused operation. Went to California for his health. Returned after thirteen months for operation. While in California had tonsillitis and a general myositis. Tonsillectomy done under local anesthesia. Has had no further trouble.

Case VI.—Mrs. S., age 50; case under observation for two years prior to tonsillectomy, during which time she had two attacks of tonsillitis. An operation was advised a number of times, but her consent was not obtained until she was rendered helpless from an involvement of the joints and muscles. After tonsillectomy her condition rapidly improved and at the present time she is in better health than she has been in for many years.

Case VII.—Mrs. P., age 27; multiple arthritis, joints of some of the fingers, toes and one ankle very much swollen. Tonsils did not appear on casual inspection to be abnormal. A more careful examination revealed very large tonsils submerged and almost hidden by the anterior pillars of the fauces. These tonsils, when removed, were of unusual size and septic. This case was operated on September 26. She has shown no improvement of the joints. Is being treated by her attending physician with phylacogen.

Case VIII.—Dr. S., age 46. Has had numerous attacks of tonsillitis and eight attacks of peri-tonsillar abscess of right tonsil, extending over a period of several years; the last abscess occurred three months before tonsillectomy was done. The patient complained of a general soreness of the muscles and impaired hearing.

Examination revealed a toxic nephritis, a chronic catarrhal otitis media, arterio-sclerosis, marked arcus senilis, chronic tonsillitis, dental caries, and pyorrhea. Wassermann, negative. Right tonsil was very large and difficult to remove because of adhesions.

Case IX.—Mrs. F., age 29. Presents a history almost identical with Case No. 8, with the exception of the senile changes. The results obtained in these two cases have been very gratifying.

Case X.—E. B., male, age 40. This was a troublesome case of sub-acute pharyngitis and laryngitis with small fibrous tonsils, which did not appear to the septic. I treated this man for several weeks with local applications with very little benefit. Tonsillectomy cleared up the condition promptly.

Case XI.—I wish to report because of the lateness in which hemorrhage occurred. This was a vigorous young man, 28 years of age, and as good a surgical risk as I ever saw. The operation was done under cocaine and adrenalin and was a painless and practically bloodless operation. The patient had no trouble of any sort until the ninth day when returning from a picture show at night he had a severe hemorrhage. The following night at about the same time he had another severe hemorrhage and again on the thirteenth day, after which he had no further trouble. The hemorrhage in this case was probably due to the separation of a slough which forms in all cases to some extent, especially where there has been much trauma. Where this slough involves vessels its separation might readily cause some hemorrhage.

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COUNTY SOCIETY REPORTS

Allen—At the regular meeting of the Allen County Medical Society the following officers were elected:

President ____________ E. A. Whitlow
Vice President ____________ C. A. Calvert
Secretary-Treasurer ____________ J. E. Pace
Delegate ____________ A. O. Miller
Censors ____________ C. W. Holland

Ballard—At the regular meeting of the Ballard County Medical Society the following officers were elected:

President ____________ W. A. Ashbrook
Vice President ____________ J. D. Rollins
Secretary Treasurer ____________ G. L. Thompson
Delegate ____________ G. L. Thompson
Censors ____________
J. W. Meshew, Ezra Titsworth, Bob C. Overby

Bell—At the regular meeting of the Bell County Medical Society the following officers were elected:

President ____________ O. P. Nuckols
Vice President ____________ Jacob Schultz
Secretary-Treasurer ____________ J. G. Foley

Breckinridge—At the regular meeting of the Breckinridge County Medical Society the following officers were elected:

President ____________ J. A. Sandbach
Vice President ____________ R. W. Meador
Secretary-Treasurer ____________ J. E. Kincheloe
Delegate ____________ J. E. Kincheloe
Censors ____________
A. M. Kincheloe, B. H. Parrish, S. P. Parks

Boyd—At the regular meeting of the Boyd County Medical Society the following officers were elected:

President ____________ W. L. Gambill
Vice President ____________ C. B. Preston
Secretary ____________ A. J. Bryson
Treasurer ____________ G. W. Moore
Delegate ____________ G. W. Moore
Censors ____________
H. S. Swope, J. L. Richardson, L. M. Prichard

Campbell-Kenton—At the regular meeting of the Campbell-Kenton County Medical Society the following officers were elected:

President ____________ J. A. Davis
Vice President ____________ W. J. Thomasson
Secretary ____________ J. H. Helmstedt
Treasurer ____________ R. Lee
Delegates ____________
F. A. Stine, Claude Youtsey, Furnish, Bird Ryan.
Censors ____________
H. F. Wilson, Claude Youtsey, J. D. Davi-

BOOK REVIEW

The Practical Medicine Series—Comprising eight volumes on the year's progress in medicine and surgery, under the general editorial charge of Charles L. Mix, A.M., M.D., professor of Physical Diagnosis in the Northwestern University Medical School. Volume VI., Pharmacology and Therapeutics, edited by Bernard Fantus, M.S., M.D., Associate Professor of Therapeutics, Rush Medical College. Preventive Medicine, edited by Wm. A. Evans, M.S., M.D., LL.D., D.P.H., Professor of Sanitary Science, Northwestern University Medical School, with the collaboration of G. Koehler, M.D., Assistant Commissioner of Health, City of Chicago. Price, $1.75. Series 1921. Chicago, the Year Book Publishers, 304 South Dearborn Street.

It is probable that all the editors of the various subdivisions of the "Year Book" feel that theirs is the most important section of the "Practical Medicine Series." Naturally the editor of the part devoted to Pharmacology and Therapeutics shares the opinion of his distinguished colleagues. Like the others, he has been embarrassed by the enormous volume of material poured in upon him when the cessation of the war reopened the floodgates of European literature. It required the exercise of much care to select some and reject the rest of it. As a general principle, work of no practical therapeutic value has not been reviewed. Demonstrations of the worthlessness of certain new and little used remedies, important as these studies are to the pioneer in therapy, have generally been rejected owing to lack of space. Wherever the editor entertained grave doubts about the soundness of an author's conclusions, the article has been withheld instead of indulging in derogatory editorial comments, as might have been his privilege.

Clinical Electrocardiography.—By Frederick A. Willius, M.D. Section on Clinical Electorcardiography, the Mayo Clinic, Rochester, Minnesota and the Mayo Foundation, University of Minnesota. Octavo of 188 pages with 185 illustrations. Philadelphia and London. W. B. Saunders Company, 1922. Cloth, $5.00 net.

This book records the clinical accomplishments of the electrocardiograph and particularly the work being done in this field at the Mayo Clinic. It presents the subject of electrocardiography in a logical way, considering the fundamentals, the technic of obtaining records, disorders of the cardiac mechanism, organic and functional, and the facts regarding prognosis. A conscientious effort has been made to obviate the difficulties confronting beginners in the application of electrocardiography by correlating physiologic and pathologic aspects of cardiac disease and by simplifying the classification of disorders of mechanism. It is to be remembered that much of the recent knowledge pertaining to cardiology has been obtained through a study of the cardiac mechanism, both normal and abnormal, as revealed by the graphic methods of precision of the electrocardiograph.

An Essay on the Physiology of Mind.—By Francis X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia. 12 mo. of 150 pages. Philadelphia and London. W. B. Saunders Company, 1922. Cloth, $1.75 net.

Dr. Dercum presents in this book a new and original interpretation of mental phenomena; an interpretation based upon biologic, morphologic, physical, and chemical considerations, appealing to the student of psychology, psychiatry, physiology, and biology. Application is made of facts and principles presented to the study of the various phenomena of mind—sentiency, sensation, perception, appreciation, association, thinking, memory, the field of consciousness, the unconscious field, dynamic relations or the two fields' attention, concentration, initiative, will power, conception, imagination, originality, logic —and to the pathology of mind. In this connection are considered hallucinations, illusions, delusions, hysteria, hypnosis, dreams, delirium, confusion, stupor, dementia, idiocy, dementia praecox, melancholia and mania.

The Mechanics of the Digestive Tract.—By Walter C. Alvarez, M.D., Assistant Professor of Research Medicine, George Williams Hooper Foundation for Medical Research, University of California Medical School. With 22 illustrations. Paul B. Hoeber, publisher, New York. Price, $3.50 net.

Gives in detail all the present knowledge of the processes of digestion, sufficiently technical for the research worker in physiology, and readable and practical enough for the practising physician who is looking for help on a clinical or surgical problem. A concise but complete description is given of both the research and the clinical work which has led to our present knowledge of the subject.

The theory of peristalsis and the gradient theory of digestive forces, so much discussed today and yet so little understood, are here explained and clarified in a manner that has been needed for a long time.

A conception of the plan and scope of the book may be had from the chapter headings, and it may be added that the bibliography and index have been said to be "alone worth the price of the entire book."

Clinicians, roentgenologists, physiologists, gastro-enterologists and surgeons will find this book an invaluable addition to their libraries.

Abdominal Pain.—By Prof. Dr. Norbert Orfner, chief of Second Medical Clinic University of Vienna, authorized translation by William A. Brams, M.D., formerly Lieutenant-Commander Medical Corps, U. S. N., and Dr. Alfred D. Luger, First Assistant Second Medical Clinic, University of Vienna. Rebman Company, New York, Herald Square Building, 141 W. Thirty-Sixth Street, publishers. Price, $5.00.

The translation of this volume on abdominal pain was undertaken with the desire to present the teachings of the school of Bamberger, Neusser, and Ortner in what is perhaps their best and most adequate form. The work is based upon the wide personal experience of one of the principal figures in the school it represents, and most of the diagnoses it contains have been carefully verified by surgical and anatomical procedures. The translators hope that it will fill the need for a concise and competent discussion of the subject as seen by the clinician in his daily work.

The book is the result of the author's personal observation during many years of clinical activity. The index alone is of unusual concept and merit and adds very largely to the value of the book which is written in clear, concise and comprehensible language. It is a gold mine of knowledge and will prove the greatest aid in medical as well as surgical diagnosis.

Diseases of the Eye.—A Handbook of Ophthalmic Practice for Students and Practitioners. By George E. deSchweinitz, M.D., LL.D., Professor of Ophthalmology in the University of Pennsylvania. Ninth edition, reset. Octavo of 832 pages with 415 text-illustrations and seven colored plates. Philadelphia and London. W. B. Saunders Company, 1921. Cloth, $10.00 net.

The new edition, consisting of 832 pages with 415 text illustrations and six chromo-lithographic plates, records the important ophthalmic observations, therapeutic measures, and surgical procedures which have been made and devised since the appearance of the former edition four years ago. The 100-page section on operations gives the preparation of field, of instruments, dressings, sutures, general, local and infiltration anesthesia; local hemostatics and the exact technic of all procedures.

Some of the more important subjects discussed for the first time are: Jennings' self-recording test for color blindness and Nagel's card test; ophthalmoscopy with red-free light; measurement of accommodation by skiascopy; electric desiccation in the treatment of lid-carcinomas and epibulbar growths; striate clearing of corneal opacities; superficial linear keratitis; keratitis pustuliformis profunda; anterior lenticonus; epidermic grafts for the correction of ectropion; epithelial outlay for ectropion, Esser's epithelial inlay; Maxwell's operation for contracted socket; conjunctivoplasty; Heisrath's operation in trachoma; trephining sclera for detachment of retina; Verhoeff's operation; Muller's method for retinal detachment; cartilage implantation after enucleation of eyeball; Mosher's operation for dacryocystitis.

A Text-Book of General Bacteriology.—By Edwin O. Jordan, Ph. D., Professor of Bacteriology in the University of Chicago and in the Rush Medical College. Seventh Edition thoroughly revised. Octavo of 744 pages, fully illustrated. Philadelphia and London. W. B. Saunders Company, 1921. Cloth, $5.00 net.

Dr. Jordan's work covers the entire field of bacteriology, pathogenic and non-pathogenic, greater attention, of course, being given the former. In this edition the chapters on influenza and anaerobes have been completely rewritten, while those on streptococci, pneumococci, and typhus fever have been subjected to heavy revision. Important additions have been made under the headings of immunity, yellow fever, and methods of studying bacteria. These are the gross changes; but scarcely a page has escaped Dr. Jordan's critical pen. This book appeals to all those interested in medicine, and to academic and scientific workers in many other fields because, in addition to medical bacteriology, there are chapters on bacteria in arts and industries, dairying, soil, air, and water, plant, disease, etc.

"We are familiar with no book on bacteriology that will serve so well the needs of the busy physician. It is interesting and stimulating reading and remarkably up to date."—Journal of the American Medical Association.

Infant Feeding.—By Clifford G. Grulee, M.D., LL.D., Associate Professor and Acting Head Department of Pediatrics at Rush Medical College. Fourth Edition, thoroughly revised. Octavo of 397 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1922. Cloth, $4.50 net.

Dr. Grulee has gone carefully through the new literature and added those developments of promise. An entirely new chapter is that on the Psychology of Infant Feeding. The chapter on Absorption and Metabolism has been rewritten and the work reset.

The plan of the work is this: Dr. Grulee first reviews the scientific principles bearing on the subject. Then breast feeding is taken up, followed by artificial feeding. You are given Dr. Grulee's own simple formulas; and so thoroughly does the book go into nutrition that it is really a work on dietetic treatment of infantile diseases. There are eight colored illustrations of stools.

KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

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EDITORIAL

AN ANNOUNCEMENT

On the morning of May 4th the great mind and heart, which, for half a century has so well served the profession and the people of Kentucky and the nation, fell asleep. The loved physician, skillful, tender surgeon, statesman, publicist, loyal friend, thoughtful, devoted husband, loving, self-sacrificing father, he was the exempler of all that is good amongst the disciples of the Great Physician. Cruelly attacked many times by those who would exploit the ills of the afflicted, Dr. Joseph N. McCormack lived and died with the love and respect and confidence of those with and for whom he worked. The editor can say no more. Proud of his heritage from such a father, he realizes best of all his inability to reach the supreme heights on which he trod. He, therefore, bespeaks the kindly consideration of those who loved him and appeals to the profession and people of Kentucky to continue, through such leadership as may develop, to work and play and pray together that we may be able to see our state the abiding place of a happy people, in accordance with his vision, from which unnecessary disease and defects will have been banished, which may afford to the world an example of a great commonwealth so devoted to humanity that its material interests will develop naturally as the home of a successful, productive, effective people.

An early issue of the JOURNAL, under the editorship of his lifelong, devoted friend, Dr. L. S. McMurtry, will be dedicated to his memory.

MEDICAL PROBLEMS.

For the past year the editor of the JOURNAL has had the opportunity of meeting professional organizations in Massachusetts, Vermont, Virginia, Alabama, Indiana, Minnesota, Washington and Oregon, who wished the entire medical profession of Kentucky might have been along with their representative on these trips so that it might be possible for us all to evaluate together the work of the medical profession of America, to study together the defects that have developed in our system and together plan for the development of the leadership which will remedy those defects.

Our most serious fundamental difficulties are developing from the control of the medical education by salaried educational experts who know everything about some particular science and nothing about the treatment of disease. It is increasingly apparent that the public is chiefly interested in the art of medicine. They appreciate what we all realize, when we stop to think of it, that diagnosis is only of value to the individual when it leads to practical action to remedy the condition from which that individual suffers, or to prevent its further development where remedy is impossible, and that based upon the art of practice of remedial medicine, is the importance of subsidiary departments of preventive medicine.

There must be remembered at all times that the practice of medicine includes preventive medicine; that there is no possible cleavage between those of our number who practice the other branches of medicine and those who specialize in preventive medicine, but whenever one of these relies upon the other it helps to destroy the influence of both. It is important to remember that the only health officer who will come in personal contact with most families is the family physician. Fortunately, the whole trend of medical education is to reverse the absurd and outrageous, which come from the great organizations in this field that have been developing the specialties at the expense of the great body of the profession—the general practitioner.

As far as the editor is personally concerned he had as soon be treated by any one of the new cultists as to be treated exclusively by almost any specialist in medicine who had never had a broad experience in the general practice of the art. It must be realized that it is impossible to give the under-graduate medical student such training as will enable him to limit his practice to any one of the specialties under a year's interneship. It is sufficiently difficult to give him the fundamental training that qualifies him to become, in the course of time, a well-rounded general practitioner. Most people are not now and never will be treated when they are sick by a group of physicians who might as well realize that fundamental fact now and start to reason from that basis. The well organized groups, under competent management, are unquestionably accomplishing wonderful results in complicated chronic conditions that baffle the general practitioner. It is important to emphasize the necessity for such first class management by a competent executive, who can assemble the evidence presented by the various members of the group and omit those parts of the examination that are immaterial in that particular case and determine what should be done by the patient under the guidance of his family physician to make him as healthy as possible by the earliest, least expensive route. Many of the diagnostic letters, written to physicians are ridiculous and this practice should be discontinued.

From time to time during the year the editor proposes to continue thinking on paper hoping for restimulation and reaction amongst our readers along these lines. No instinct in man is more fundamental than that of self-preservation. The profession that we all love may continue to go on aimlessly and allow its destiny to be controlled by those who do not know, but the JOURNAL deserves to voice a protest against such lethargy. Its columns are open to the profession of the state and we will be glad to publish your thoughts along these or other professional lines of activity. Have no hesitation about saying what you think. This is a time for plain talking, for straight thinking, and, unless we have made up our minds to surrender the heritage of the fathers in medicine to the hoards of quacks and ignoramuses that are attempting to invade our realm—united action!

REPORTING PREVENTABLE DISEASE.

It is well from time to time for us to consider together the means of bringing reports to the County and City Health Departments of the diseases that are made notifiable by law.

The medical profession is being attacked from all sides by well paid, shrewd lobbyists with large commercial organizations behind them. They are fighting unitedly for the purpose of securing the financial support of the people. It is of the utmost importance that the medical profession, which has the knowledge and the ability to really accomplish great results—in fact, the only results that are worth mentioning in the treatment and prevention of diseases—shall themselves keep a clean house and so maintain and secure public respect and confidence. The diagnosing of the preventable diseases can usually be made only by those who are qualified under the state law to treat sick people. Unless prompt reports are made so that plans can be put through for the reduction of unnecessary disease and death rates, little is accomplished for the public health.

County societies are urged to take these matters up in their formal meetings and help to put over the best reporting system in the country. At present Kentucky does not rank high amongst those states which are reporting their notifiable diseases, and the JOURNAL desires to appeal to the physicians of the state to each do their part in remedying this condition

THE RIGHT WAY TO HANDLE SMALLPOX.

A case of smallpox was found by a physician at Knob Lick in Metcalfe County. It was promptly reported to Dr. J. A. Yates, the effective County Health Officer, who that day vaccinated everyone in the neighborhood, and there was no spread of the disease. The efficacy and economy of this method of management of smallpox is commended to the physician and health authorities of Warren and other counties that have been long harboring this disease.

THE PROGRAM FOR THE PADUCAH MEETING.

In this issue of the Journal is printed the tentative program for the Paducah meeting. It has been planned with the purpose of presenting practical papers and time will be allowed for free and full discussion of each paper.

The committee hopes that the doctors of the state who wish to write on any of these subjects or on any other live topic will communicate with the chairman, P. F. Barbour, Francis Building, Louisville, before July 1st, as those subjects which have not been applied for by that time will have to be assigned, so that adequate time may be given for their proper preparation.

Any one that selects a subject will greatly help the committee by sending the names of the doctors whom he wishes to discuss his paper.

SCIENTIFIC EDITORIAL

OPTIC NEURO-RETINITIS.

A very interesting case of optic neuroretinitis caused by pressure in the attic of the nose and cured by relief of the pressure was referred to me by Dr. Murison Dunn, Richmond with a history as follows:

Mrs. O. when first seen by us was suffering from violent headaches, located on the right side and most violent in the frontal region. She had rather suddenly become almost blind in the right eye, the vision being 6-100. Her left eye had been blind for over fifteen years.

On examination her right tympanic membrane was found to have a large perforation. As there was no discharge and there had been no active symptoms for many years it was thought that her ear condition could have no connection with her present trouble. Her tonsils were found to be badly diseased, the pus oozing from both of them on pressure. In the nose no pus was found, but the septum was greatly thickened at a point exactly between the middle turbinates, both of which were pressed tightly against the lateral nasal walls. This condition was worse on the right side. The ophthalmoscope showed a typical neuro-retinitis of so marked a degree that the vessels showed only as indistinct lines in the exudate.

Operation—A submucous resection was done and the bone between the middle turbinates was found to be nearly a quarter of an inch thicker. When this was removed it was rather easy to break the turbinates away from the lateral walls, but care was taken to see that they were free clear to their posterior ends. The nose was packed with iodoform guaze saturated with vaseline, the end being carried up behind the turibnates to keep them away from the walls. The tonsils were then removed. The entire operation was done under local anaesthesia, the nasal part being done by the nerve blocking method with cocaine adrenalin mud and tonsils removed with ½% novocaine.

Results—The headache which had been almost unbearable for a long time was relieved at once and apparently permanently. The vision began to improve almost at once and in one week was 6-9 minus 3. It was 6-100 before operation. The ophthalmoscope showed that the vessels were plainly visible though still covered in places by organized exudate which would probably never entirely clear up.

We believe that this case ought to go down in the records as a case of marked neuroretinitis, proved by the result of the operation to have been caused by pressure in the nasal attic. It is very doubtful if the tonsils had anything to do with causing the trouble.

R. H. Cowley.

OFFICIAL ANNOUNCEMENTS

TENTATIVE PROGRAM KENTUCKY MEDICAL ASSOCIATION.

Tuesday, a. m.—
Call to order by the President.
Invocation.
Address of welcome.
Response.
Installation of President.
Address of President.
Report of Committee on Arrangements.
Memorial to Dr. J. N. McCormack.
Dr. McCormack As a Man.
In His Relation to the Medical Profession.
His Relation to the Public.

Tuesday, p. m.—
1. Diganosis and Treatment of Broncho Pneumonia.
2. Diagnosis and Treatment of Lobar Pneumonia.
3. Complications of Pneumonia.
4. Surgical Treatment of Pleurisy and Empyema.
5. Surgery or the Chest.

Wednesday, a. m.—
1. Common Gastric Disorders and Their Treatment.
2. Enteritis.
3. Bacteriology and Treatment of Disease of Colon.
4. Colitis.
5. Relation of Rectum to Digestive Disorders.
6. Acute Obstuction of the Bowels.

Wednesday, p. m.—
1. Abortion—Criminal and Inevitable.
2. Abortion—Therapeutic.
3. Rectal Anesthesia in Obstetrics.

Thursday, a. m.—

Physiology of the Ductless Gland.
Thyroid and Thymus From Medical Standpoint.
Thyroidectomy.
Possibilities and Limitations of Endocrine Therapy.
Thursday, p. m.—
Group Medicine.
Possibilities of Centralized Laboratories.

ORIGINAL ARTICLES

THE CLINICAL RELATION OF THE TONSILS TO THE THYROID.*

By J. A. Stucky, Lexington.

This topic was selected not to bring up the tonsil question for discussion, but with the desire to get help from the surgeons and internists of some phases of it which have been puzzling to me. For a number of years I have been disappointed by many of my cases whose entire trouble was due to pathological conditions in the naso-pharyngeal cavities and who should have been completely relieved by surgery, but when the surgery was done in as satisfactory manner as could be desired, the results were frequently unsatisfactory and embarrassing. For these reasons at a meeting of the A. L. Rando Society in Pittsburg, Pa., several years ago, I said, "Many cases coming to the oto-laryngologist must be relieved by treatment other than surgery or local applications. For the past ten years I have been treating my cases in addition to my local and surgical treatment, giving them systemic treatment relating to the gastro-intestinal tract, and along this line I have had better results than in any other."

Within the past few years endocrinology has come more and more into the spotlight of the scientific world. At first I tabooed the idea that endocrine dysfunction could account for so many clinical conditions met with, later I was loathe to accept the theory as anything more than imaginary or psychic, but within the last two or three years I am becoming more gratified and optimistic of future results, yet I feel that I am using the treatment empirically, oftentimes in the "hit or miss" style, because we have as yet no standardized metabolic test that will indicate to us the endocrine that is hypo or hyper active. Attention has been called to the relation of the pathological tonsil to the thyroid by many writers in the past few years, but five cases which I have had under observation for several years have puzzled me to know which was cause and which effect, in cases where both the tonsil and the thyroid were diseased. Undoubtedly many tonsils not diseased are removed, but I cannot believe that this is due entirely to the operative craze which now exists, but rather to the fact that the concensus of opinion of laboratory workers, internists, and diagnosticians is that an empty house is better than a bad tenant, and a hypertrophied or septic tonsil is considered a bad and treacherous tenant. At present it is as easy to say when it is safe to leave the tonsils alone as it is the appendix.

In the cases referred to in this report the tonsils were submerged, adherent and septic, a culture from which showed a mixed infection in which streptococcus viridans or streptococcus hemolyticus predominated, but no complaint was made by the patient of the throat. The ages of the cases were from 26 to 43 years (female). I advised the removal of the tonsils before removing the thyroid and both surgeon and internist disagreed with me, the weight of the evidence being that the toxemia as evidenced by the headache, tachycardia and tinnitus aurium, etc., were the result of the thyroid disease and in no way connected with the tonsil condition. The operation of thyroidectomy was done skillfully and recovery in each case was rapid and uneventful, but the headaches persisted and the tachycardia and tinnitus aurium and the dry discomfort of the nose were unimproved. All focal infections so far as teeth, nasal cavity, accessory sinuses and refractive errors were eliminated. In each case from three to nine months after the thyroid operation the tonsils were enucleated, but with little or no relief, nor was any benefit obtained from any local treatment. Administration of the endocrines for several weeks or months with careful observation of the results of each has brought surprising and gratifying results and the question which I hope will be answered at this meeting, was the tonsil, the primary cause of the trouble in the thyroid, and if so would the operation of thyroidectomy have been unnecessary if the tonsils had been removed early and attention been given to the endocrines, or in similar cases would it not be better to remove the septic tonsils before removing the thyroid?

This question is emphasized because in a selected group of cases, presenting the same clinical symptoms, with similar laboratory findings—in which the thyroid was undoubtedly diseased, and its removal not only indicated but advised by internist and surgeon, all symptoms of the toxic thyroid subsided within thirty to ninety days after removal of submerged adherent tonsils with fistulous crypts, which contained bacteria, cocci and various micro-organisms and administrations of pluro-glandular therapy. The frequency with which I am asked by young women if they have diseased tonsils or a goiter when they have no symptoms of either, suggests that possibly an anxiety neurosis concerning the fate of these glands is on the increase. There are two reasons for this anxiety; (1) the most common symptoms in toxic conditions due to the tonsils is nervousness; (2) enlargement of the thyroid, with some tenderness often accompanies or follows acute tonsillitis.

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*Read before the Tri-State Meeting American College of Surgeons, Memphis, Tenn., February 27, 1922.

My observations confirm those of Barach who found in twenty-five cases a definite syndrome, indicating thyroid dysfunction, which was evidently the result of a chronic tonsillar infection. All of these occurred in females from fifteen to thirty-five years of age. The history in each case showed repeated attacks of tonsillitis and infected submerged or hypertrophic tonsils with development of a colloid goiter and symptoms of hypothyroidism. The typical syndrome was pasty and sallow complexion, dryness of skin and hair, alopecia, excessive development of the breasts, disturbed menstural function and tendency to sterility, thickening of the subcutaneous tissue, obesity, lack of appetite, especially in the morning, moist cold hands, hypersensitiveness to cold, low blood pressure and slow pulse, thickened tongue, coarse voice and thick speech, puffiness of face and eyelids, drowsiness and early fatigue, dyspnoea on exertion, brittle nails and neuralgias. If the theory that colloid goiter is produced by lack of iodin is correct, it is possible that the chronic tonsillar infection robs the system of iodin. (Dr. J. H. Barach, New York M. J., Dec., 1921.)

Glandular insufficiency is of common occurrence and frequently overlooked, and chronic infections are almost invariably associated with glandular syndromes. These infections are usually focal in character and seem to occur with the same relative frequency in insufficiency of the thyroid, pituitary, ovary and adrenals.

That acute or chronic infectious processes have an etiological significance in either hyper or hypo-functioning of the thyroid has been frequently suggested, and has been well demonstrated clinically. The removal of chronically inflamed tonsil, gall-bladder and appendices has been advocated as the first step in the treatment of Grave's disease, a measure which frequently results in cure.

From a cursory review of the literature upon the subject, it seems that there is still great doubt in the minds of endocrinologists as to whether the infections and their toxins are the cause or the result of the deficient secretion.

Billings emphasized the frequency with which thyroid intoxication occurs in young women patients with focal infection in form of alveolar abscesses, tonsilitis and sinusitis. Reede cites a case in which goiter symptoms were relieved after removal of two abscessed teeth, and another case in which goiter, arthritis and pyorrhea followed tonsillectomy, from which the patient recovered after treating the pyorrhea and extracting an abscessed incisor.

The administration of thyroid usually relieves those symptoms referable to thyroid deficiency, but it does not remove the source, and therefore the results are not permanent. Surgical measures must frequently be employed.

From the foregoing consideration with a clinical picture of hypothyroidism, one should always suspect the possibility of chronic infection and make a diligent search for foci, especially in tonsils, mouth, gall-bladder and appendix.

Cases of hypothyroidism are cited in which complicating infections first caused a marked increase in the severity of the thyroid symptoms, later followed, after acute infection had subsided, by striking improvement if not cure. It is not probable that the improvement seen is due to actual loss of secretory tissue through post-infectious sclerosis of the gland. The tonsils in both cases are summarily mentioned as foci of infection in both cases. (T. L. Squier, Am. J. Med. Soc.)

It has been the observation of many clinicians that some girls during adolescence show a slight tendency to a marked enlargement of the thyroid gland. This enlargement is usually bilateral. It may be constant or it may be present only during the actual period of menstruation. This condition the author believes to be one of hyperthyroidism. Experiment work, checked by clinical reports, makes it seem certain that there is a definite relation in growing girls—boys as well—between the internal secretions. There seems to be a delicate balance in these secretions.

The increase in the size of the thyroid gland is due, it would seem, to a demand for more of the thyroid secretion. The gland tries to supply this demand, but the growth is one of structure, not of the secreting or active part.

There would appear to be a definite relation between this overgrowth of the gland and the tonsils. There need not be frequent tonsillitis. The tonsils if everted with tongue depressors will often show much hidden exudate. The anterior cervical glands will be enlarged, showing that a chronic inflammatory condition of the tonsils is present.

Clinicians are agreed that the thyroid is most affected by those diseases throwing a heavy load of intoxication on the system. Sir Arbuthnot Lane holds that thyroid impairment and intestinal stasis are constantly associated. Pediatricians and oto-laryngologists have proven conclusively that pathogenic tonsils produce a heavier load of toxins with frequently more disastrous results than any one known disease. We are prone to forget that thyroid dysfunction does more than interfere with development of bone, muscle, ligament and the skin, hair and nails are affected secondarily. The mucous membrane, I have found in many instances, shares in this infiltration and becomes congested and thickened—or retracted and inelastic. The larynx, especially is infiltrated and thickened, the voice peculiar with an irritating cough. In a similar manner is the lining of the middle ear and eustachian tube involved.

Clinical observations convince me that there is a "well-founded physiological interrelation between the tonsils, adenoids and ductless glands and indication of dysfunction of the latter should be given careful attention and medication before operation is resorted to." (Selfridge.)

The impaired function of the larynx I have seen following ideal thyroidectomies emphasizes the importance—as suggested by Sir Edward Starr—that careful laryngoscopic examination be made before the operation for goiter. Temporary disturbance of voice and respiration after thyroidectomy may be due to one or more of the following factors: (1) Change in position of muscles and cartilages due to shifting of the displaced larynx into normal position; (2) oedema of the tissues; (3) myositis; (4) trauma of the nerve.

Conclusion: The above cases raise the question whether the removal of the tonsils caused the reduction in the size of the thyroid enlargement. It would seem certain the toxins produced in the tonsils caused the increase in the first place. The growth took place to supply the demand for more of the thyroid secretion. This was not obtained to any great degree. Case I would seem to confirm this theory.

The giving of thyroid extract in small doses after the initial reduction in size seems to aid in a still further decrease. The dose of the extract in all cases was small because of the infrequent visits of the patients. There was no upset of any kind due to giving the extra thyroid. The definite improvement in the general health of the patient can be accounted for by the removal of the tonsils.

The giving of thyroid extract alone will in time cause some reduction in the size of the thyroid, but the tonsils must come out if this reduction is to be permanent.

Toxemia if not of focal origin may be of bacterial origin, but much more frequently it is due to absorption of poisons from the alimentary canal or from foods, especially of the animal proteins combined with tea and coffee. In a word toxemia if not due to focal infection (directly) is due to an accumulation of waste products not properly oxidized which causes an irritation of the nerves, which in turn produces symptoms similar to inflammation of the nerves. It is an admitted fact that one of the commonest causes of deficient cellular chemistry is hypothyroidism.

Whenever the detoxicating mechanism has been overburdened one or more evidences of asthenia are present. Whether or not the thyroid function test is an indication of hypo or hyperthyroidism, I act on the presumption that hypothyroidism is present and encourage cellular chemistry, increasing the circulation, thus favoring a return to normal conditions. A toxemia of long standing is over-stimulated adrenal glands until they are physiologically depleted, frequently showing decided loss in urea, below normal in a twenty-four hours' specimen of urine. The poor circulation is shown at times by the gland being pustular, extremities cold, heart action weak and rapid, and B. P. below 100. The patients are asthenic or tired in proportion to the exhaustion of their body chemistry or metabolism; they have all sorts of aches and pains, sometimes rheumatism, chronic headaches often worse in the morning. In addition to the removal of the focal infection whether found in the tonsils, teeth or sinuses my routine for treatment consists in the administration of the pluro-glandular endocrines.

My clinical observations convince me of the reciprocal relations between the endocrines, and while the metabolic tests made show unmistakable hypo-function of one of the endocrines, the administration of the needed gland frequently gives unsatisfactory results, but when given in combination with two or more of the other endocrines the result is most satisfactory.

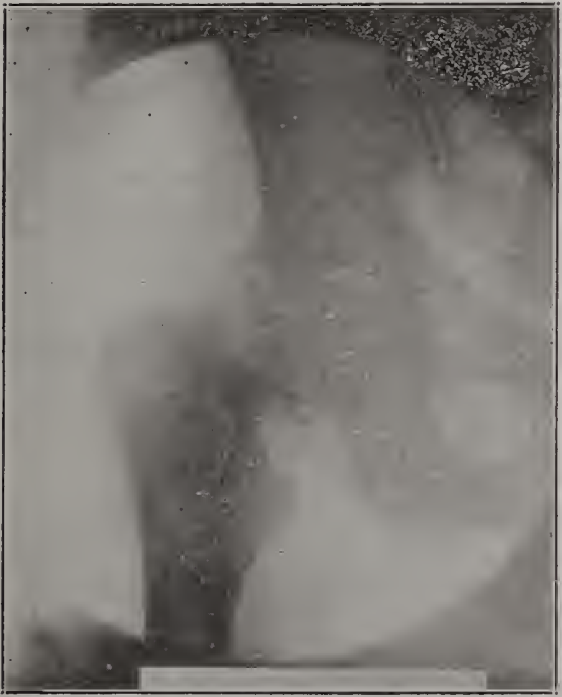
Most all of these cases I find are suffering from alkali hunger, and are in need of what the French call "remineralizaton" and measures are used calculated to increase alimentary elimination besides stimulation of the liver, free purgation, with calomel, castor oil, and salines to pave the way for the routine treatment which follows this, consisting of remineralization of the antagonizing of the accumulation of acid waste which results from the disturbed chemistry.

The hypo-alkalinity may be as much at the bottom of their toxic symptoms as any other one factor, and their sluggish and imperfect metabolism favors the accumulation of more acid which removes from the body its reserve of mineral salts. In addition to the administration of the pluro-glandular therapy in small doses, given three times a day, the diet is restricted so far as animal protein, tea and coffee are concerned and a generous diet of vegetables, fruit and milk is given, encouraging the patient to drink freely of water between meals.

FRACTURE OF FEMORAL NECK: OSTEOMA IN POPLITEAL SPACE, CASE REPORTS*

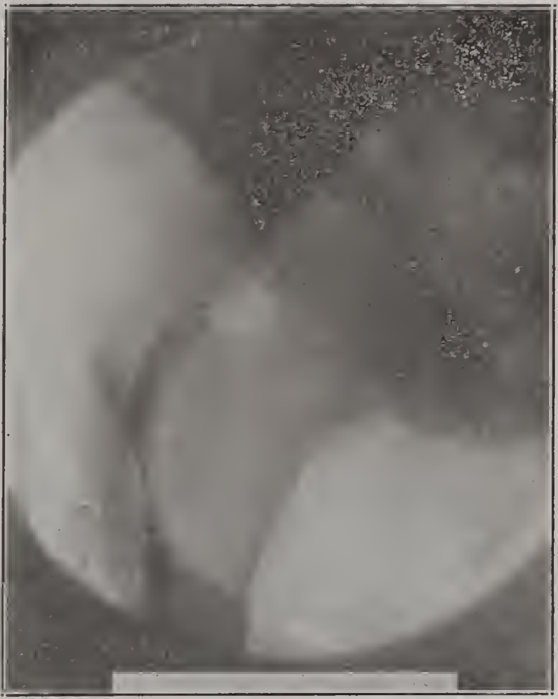
By Barnett Owen, Louisville.

Case I.—J. G., a male, aged sixty-five years, from the lower part of Kentucky, sustained a fracture of the neck of the femur about six months ago. He was brought to Louisville for treatment quite recently. The first picture presented shows the condition before attempted reduction; the second shows the fracture after reduction by the Whitman method.



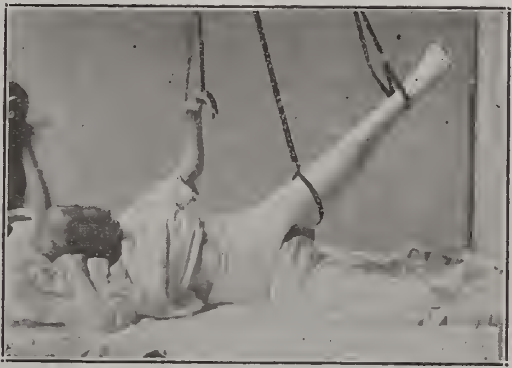
Fracture of femur before reduction.

In the application of this method the patient is completely anesthetized and the injured leg abducted to the limit which is about 45° and complete extension. The second picture shows the head of the bone in normal position and unless one looks closely the line of fracture cannot be seen. The patient was placed on a Hawley table and plaster dressing applied from toes to well above iliac crest.



Fracture of neck of femur after reduction.

Another picture shows how easy it is to care for the patient after reduction has been accomplished and the dressing applied. Note the frame which is composed of three sections of three-fourths inch gas pipe, two horizontal and one longitudinal fastened to each end of the bed. This is used for suspending the patient and it is surprising how easily he can



Showing patient lying on side with leg suspended.

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*Read before the Louisville Medico-Chirurgical Society.

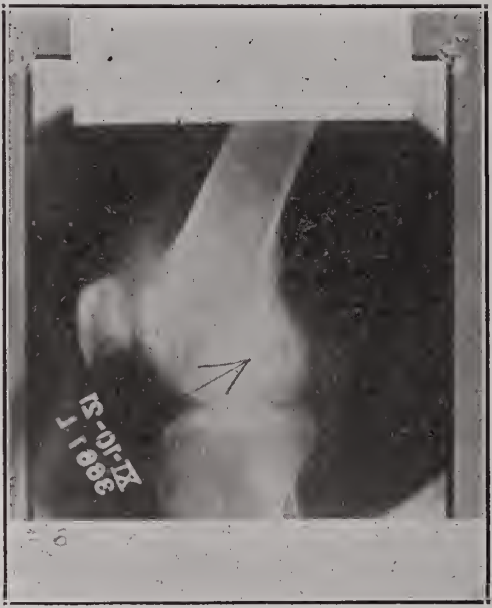
be turned from side to side, on the back, etc., and thus relieve pressure on the buttocks and elsewhere. This dressing is left intact for eight weeks, at which time the plaster is removed from the knee down, leaving a short spica. This allows movement of the knee and foot and permits the institution of daily massage with passive and active motion as may be indicated.

Showing good condition of buttocks after eight weeks in bed.

Shows equalization of weight, patient moving himself in bed. Line at knee shows point at which plaster was removed at end of eight weeks, which permitted heat, massage and active motion of knee and ankle.

The patient in this cast has entirely recovered. A perfect functional and anatomical result followed. He is now able to attend to his business without the assistance of any type of apparatus.

Case II.—The second case is one of considerable interest to me. The patient came to the office for examination day before yesterday (November 9th). He is a male, aged twenty-four and gives a history of having been well all his life until April of this year, at which time he began suffering from aching pain in his knee and slight swelling. Both flexion and extension were limited. When motion beyond this range was attempted excruciating pain was caused. After pain he always had effusion into the knee joint with considerable swelling and he had to remain in bed for several days. While walking any mis-step or stumble would cause an acute exacerbation. Prior to our examination massage, electricity and various other means had been used without benefit. Blood Wassermann negative.



Lateral x-ray view showing location and size of osteoma.

Roentgen-ray examination showed nothing abnormal about the knee joint, but behind the joint in the popliteal space is a tumor which is probably an osteoma the size of an English walnut and connected with the femur. The situation of the tumor will necessarily make its removal rather difficult. The knee joint and patella are normal. The patient still complains of limited motion and pain. I can see no hope for recovery of normal function except by removal of this osteoma. The patient is young and I believe the tumor should be removed. It is the first case of the kind which has come under our personal observation.

DISCUSSION:

J. Garland Sherrill: The treatment applied by Dr. Owen in the first case reported, viz., the Whitman method, is likely to prove the most satisfactory plan of treating fractures of this type. Of course, there are other methods of treatment which can be applied, bone grafts, bone pegs, etc., but where satisfactory results can be secured by abduction and fixation in the manner described by Dr. Owen, it greatly simplifies the treatment of fractures of the head and of the thigh bone.

The older plan of treatment in these cases was not to destroy the impaction, but this usually left the patient with deformity, the foot was allowed to remain out of position, in some instances inversion, in others eversion, and always limitation of motion and impaired function. Whitman is very strong in his belief that impaction should be destroyed and the injured limb dressed as Dr. Owen has described.

In the second case it seems to me Dr. Owen would be correct in making an effort to relieve this young man, because the presence of the tumor lessens his activity and he also suffers much discomfort from it. I believe an effort should be made at least to remove the tumor, and if this is found impracticable the operation can be abandoned. In undertaking the operation it will be necessary to approach the growth in such way as to avoid the large blood vessels and also keep in mind the position of the popliteal nerve and prevent its injury. Perhaps the greatest safety would be insured by making the incision on the lateral aspect of the leg, making a clean dissection through the muscular structures and pushing the blood vessels aside as dissection proceeds.

W. B. Owen (closing): Dr. Sherrill's statement is quite correct, there have been a great many other procedures recommended in the treatment of fracture of the femoral neck both in complete and in impacted fractures. One of the most important features has always been whether the impaction should be destroyed or left undisturbed. I was formerly of the opinion that unless the impaction created an extreme degree of coxa vara it would probably be better to leave the bone impacted. However, the more of these cases I see where there is impaction in fracture of the femoral neck, the more I am coming to believe with Whitman that in the majority of cases it is better to destroy the impaction and correct the position by means of abduction.

On the other hand, we have good authority on the other side of this question. Cotton, of Boston, impacts all of its non-impacted fractures of the femoral neck by placing a thick pad over the greater trochanter and by striking this area a sharp blow with a wooden mallet produces impaction. He claims equally as good results by this plan of procedure as secured by Whitman by destroying the impaction and restoring the head of the bone to proper position by abduction. I have never seen Cottons operation performed nor have I had an opportunity of seeing a patient who had been thus treated. Having been a pupil of Whitman, perhaps it is natural that I should believe correction of the position is the best method of treating this type of fracture. My clinical experience has convinced me that Whitman's method is correct.

With reference to bone pegs: When this method is used in the treatment of fracture of the femoral neck the object is to secure and maintain proper position just as in the Whitman operation. It is questionable in my mind whether there is much advantage in use of the bone pegs in cases of this kind. If the injured limb is abducted and dressed primarily in the manner I have described the result will probably be just as good as if bone pegs were applied. I have performed some of these bone peg operations and have seen others perform them. It is not a simple procedure by any means. It is attended with considerable shock and these individuals are usually old people who do not stand prolonged operation well. The operative manipulation is considerable and much time is required to get the head of the bone in position and insert the bone pegs. There are really three operations, i. e., first the removal of an osteoplastic graft from the tibia; second, the drilling of an opening through the greater trochanteric neck into the head of the bone, and third the insertion of the prepared bone peg. In addition an open operation is performed with its natural dangers of infection. Then apply plaster of Paris spica. By virtue of the satisfactory results which can be secured by the closed (Whitman) method I do not believe the surgeon is warranted in performing the open operation primarily. If there is non-union following the closed method, it is then time enough to resort to more radical procedures, but in my limited experience it has not been found necessary to employ any of the more radical measures, satisfactory results having followed less heroic treatment in the majority of instances. In the second case we will resort to radical removal of the osteoma.

Tuberculous Disease of the Eye.—Poyales gives photo-micrograms of three cases of tuberculous nodules in the sclerotic, or tuberculous keratitis or iritis. The boy of nine seemed to be free from tuberculosis elsewhere, and the skin tuberculin test was negative, but the two girls of 11 and 13 had pulmonary tuberculosis. The eye in all three was enucleated, as vision had long been entirely lost. There was a history in two of the cases of a blow on this eye about three years before.

Prophylaxis of Tuberculois.—Flugge argues that the reduction in the death rate from tuberculosis is only deceptive progress, as the number of the mildly infected is constantly increasing and the sources of contagion are thus being multiplied. He declares that progress can be realized only by attacking the problem as affecting the entire people, raising the level of the general health on the one hand, and isolating all sources of contagion on the other hand.

THE SURGERY OF "STOMACH TROUBLE."*

By B. F. Robinson, Berea.

The laity and some physicians speak of a number of things as "stomach trouble." This paper deals with the underlying conditions that produce the majority of the subjective symptoms that have given rise to this expression, and discusses their surgical treatment.

These various patients complain of pain after eating, pain without reference to meals, attacks of short duration, of sharp stabbing pains and attacks of colicky pain with constipation, that are relieved by laxatives or enemata. Some have gas, with or without cardiac palpitation, sour stomach and pain before breakfast. Some patients have all these symptoms at one time or another, and are never free from one or more of them. The very great majority of these people are not bed-ridden, but actually spend most of their time following some occupation or business. A few, who have money and leisure, spend both looking for cures at springs and health resorts.

There are certainly two—possibly three—chronic diseases of the stomach. Those that we are sure of are ulcer and cancer. Chronic gastritis, if it exist, is rare. Little, if anything, is known of the cause of cancer, but a great deal is conjectured.

However, the diagnosis and differentiation of cancer and ulcer are usually easy except when the two coexist in the same stomach, and even then, it is easy to diagnose a surgical condition. The diagnosis is made from the clinical symptoms and the laboratory findings. Neither the clinical nor laboratory findings alone are sufficient evidence upon which to base a positive diagnosis. The symptoms of duodenal ulcer are usually identical with those of gastric ulcer, except that the pain is rather more in the right side and comes on two to four hours after eating. In this condition there are apt to be occasional tarry stools following attacks of acute pain.

The laboratory differentiation of ulcer and cancer is merely a matter of hydrochloric acid. As a rule, it is greatly diminished or absent in cancer and increased in ulcer. The presence of lactic acid and the Boas-Oppler bacillus only mean absence of hydrochloric acid, and this absence may be due to any of the other usual causes besides cancer—for example, any of the wasting diseases, or a neurosis.

The Roentgen ray is a very great aid in the differential diagnosis of cardia spasm, carcinoma and stricture of the esophagus, also between gastric cancer, gastric ulcer, duodenal ulcer and duodeno-gall-bladder adhesions. It differentiates between syphilis of the stomach and other gastric lesions, besides determining extent and location of involvement and operability in malignant diseases.

A large number of gastric symptoms; in fact, all those in the group enumerated as symptoms of so-called stomach trouble, with the single exception of absence of hydrochloric acid, may and usually do, occur in chronic cholecystitis. Chronic inflammation of the gall-bladder is much more common than gastric ulcer or gastric cancer, and very often indeed presents the clinical anomaly of almost identical symptoms. And associated with chronic cholecystitis, we very often find duodenal ulcer, gastric ulcer and chronic appendicitis—or a combination of either two. Cases of cholecystitis with calculi probably give rise to more violent acute symptoms at times than do those without calculi, but we often see typical cases of hepatic colic where operative findings are "strawberry" gall-bladder, or in older cases, gall bladders that are contracted and thickened and without calculi. The reasons for the frequent coincidence of gastric and duodenal ulcer with chronic cholecystitis are proximity of the organs involved, natural flow of gastric and intestinal contents and regurgitation of infected contents from the gall-bladder through the duodenum and into the stomach. In studying the group of conditions formerly regarded as primary gall-bladder disease, Rosenow has shown that there is always a co-existent older infection with the same strain of the same bacteria in the teeth, tonsils, sinuses, appendix or elsewhere. The infection has been carried to the gall-bladder by the blood stream. In many cases of cholecystitis the duodenum is adherent to the gall-bladder. Owing to this condition the patient suffers a great deal of pain from traction on the gall-bladder in the normal and usual motions of the upper portion of the small intestine. This adhesion has frequently produced all the clinical evidences of malignant pyloric stenosis, with a typical laboratory findings.

The surgical treatment of duodenal and gastric ulcer gives brilliant results. In patients so treated, the percentage of cures is well over ninety and well toward one hundred.

Very little special preparation of the patient is done before an operation for gastric ulcer. The stomach is washed out on the day preceding operation if there is pyloric stenosis, and on the morning of the day of the operation. The organ should be clean. Otherwise the preparation is precisely the same as for any other laparatomy. There is no more danger in these operations than there is in operations for ordinary cases of chronic appendicitis.

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*Read before the Madison County Medical Society.

In case of large ulcer, the treatment is excision of ulcer with posterior gastro-enterostomy; in small ulcer, gastro-enterostomy without excision of ulcer.

There is no special after-treatment, and the average patient may take food on the second or third day following operation, and water on the day of operation. They may be up on the fourth or fifth day and leave the hospital on the seventh to ninth day. The stitches are removed on the tenth day.

The treatment for duodenal ulcer is excision and gastro-enterostomy if the ulcer is large; if small, gastro-enterostomy. In other words, it is the same as for gastric ulcer. But whereas the mortality rate is three and three-quarter per cent in gastric ulcer, it is only one and three-fourth per cent in this condition.

The preparation for operation in gastric cancer is the same as for operation in gastric ulcer. If conditions permit resection, cure may be expected. If resection is not practicable, and if metastasis has occurred, life may be prolonged and relief given by a gastro-enterostomy as far from the site of the tumor as possible. However, early diagnosis and resection are of the very utmost importance in this condition if cure is to follow operation. And the fact that metastasis occurs relatively late in gastric cancer, is a very large factor in the patient's favor, if operation is considered. It has been shown conclusively by autopsies that seventy-five per cent of deaths from gastric cancer occur before metastasis has taken place, the patients dying from starvation and exhaustion.

One of the most striking circumstances in the whole field of abdominal surgery is the remarkable incidence of cholecystitis without violent gastro-intestinal symptoms. Many of these patients complain of a very small amount of pain, but are greatly distressed by a feeling of fullness in the stomach and abdomen after eating. This feeling is only momentarily relieved by belching, and in very many individuals, the gas eructated is without taste or odor. There may be a transient hyperchlorhydria at times. In a majority of instances the patient's bowel movements are more or less regular and the amount of stool is normal or nearly so. There is usually some pain of a colicky nature, especially in the upper right quadrant of the abdomen, but twinges of pain frequently occur in any part of the abdomen. On the other hand, there are cases characterized by violent attacks of hepatic colic at intervals of weeks, months or even years, with comparative freedom from symptoms of all kinds in the intervals. Jaundice is an inconstant symptom and when present is due to obstruction. Bile may be detected in the urine before there is discoloration of the sclera or skin.

The surgical treatment for cholecystitis is removal of the gall-bladder when removal is possible; drainage when removal is not possible. Removal gives permanent cure in all cases; drainage gives some relief in forty or fifty per cent of cases.

When pancreatitis accompanies cholecystitis, drainage of the gall-bladder permits drainage of the pancreas.

Chronic appendicitis occurs with about the same frequency as chronic cholecystitis, and both give many symptoms which are identical. In fact, in most cases of chronic cholecystitis the appendix is also involved. Removal of the appendix in uncomplicated cases promptly cures the gastric-intestinal symptoms and semi-invalids become normal individuals.

CONCLUSIONS.

(1) In the very great majority of conditions referred to as "stomach trouble," the symptoms are reflex, or mechanical from adhesions, and are caused by lesions of other organs. These organs are usually the appendix, gall-bladder or duodenum, or any two, or all of them.

(2) There are two chronic diseases of the stomach that give gastro-intestinal symptoms—cancer and ulcer.

(3) Removal of the gall-bladder when possible is the only rational treatment for chronic cholecystitis.

(4) Early diagnosis and prompt surgical treatment offer the only hope for cure in gastric cancer.

(5) Most cases of gastric and duodenal ulcer are cured by proper surgery.

(6) In all cases with persistent gastro-intestinal symptoms the patients are entitled to early differential diagnosis.

(7) Proper surgery will cure a large majority of people with persistent gastro-intestinal symptoms.

Ossification of Meninges.—The essential findings in the case cited by McKendree and Imboden were: history of headaches over a period of nine years; vomiting, occurring at any time of night or day at irregular intervals, aggravated by exercise; pathologically increased deep reflexes of the right upper extremity and bilateral Hoffmann's sign; facial weakness of the central type on the left; roentgenogram of the skull revealed extensive ossification of the meninges.

TWO CASES OF PEMPHIGUS WITH REMARKS.*

By JOHN EDWIN HAYS, Louisville.

As a rule a case of pemphigus is a rarity. Although not of frequent occurrence it nevertheless arouses considerable interest and presents many clinical problems to solve. Its origin is obscure, its course extremely capricious, its management a source of difficulty, and when relieved no definite assurance of permanent relief can be given. We are fairly well acquainted with its clinical manifestations, but concerning its essential cause we know nothing.

As the name would indicate, a bulla is the characteristic lesion; but it must be remembered that a bullous lesion has long since ceased to be synomymous with pemphigus. Unfortunately in times past the term pemphigus has often been loosely applied without due consideration of its true meaning.

Pemphigus is usually divided into many varieties, which, in my judgment, is wholly unnecessary and confusing. We have, strictly speaking, one type of pemphigus which is, of course, subject to variation as obtains in diseases elsewhere than the skin. A subject overburdened with a nomenclature is oftentimes on account of it obscured and made more difficult in its study.

It is, however, my main purpose in this paper to briefly summarize the histories of two cases of pemphigus which have come under my care in recent years. Both presented typical lesions of the disease, and both were of benign type.

Case I.—J. T., a traveling salesman, unmarried, aged twenty-six years. Father and mother living and in good health. There was no history of skin disease in the family except one uncle had been the subject of an eruption lasting for years. A careful inquiry into this case failed in bringing to light any information that would aid in designating this eruption. One sister, also, in early life had eczema which lasted a long time, but since recovery had been entirely free from any form of skin disorder.

There was nothing in the personal history of the patient worthy of mention, except that at the age of eighteen he had a small sore on the penis following an illicit intercourse. This was treated and soon relieved. The physician who treated him kept him under observation for a period of two months or longer, and then there being no further developments dismissed him. No blood test was made at that time.

About two years later there appeared without warning on the skin an outbreak of bullous lesions of varying sizes, the largest about the size of a walnut. These lesions were widely and irregularly distributed, most of them upon the trunk and arms. Only two appeared on the face. He did not remember whether he had fever or not, but said that some of the lesions caused considerable discomfort, not itching, but pain.

The physician under whom he had placed himself promptly diagnosed his case as pemphigus. In view of the personal history he ordered a Wassermann which was found positive. He began to act immediately on this finding by giving specific treatment. Both arsphenamin and mercury were administered in a methodical and energetic manner for three months.

At the end of this time the eruption was decidedly worse, and there was also considerable impairment of the general vitality of the patient manifested by loss of weight and strength. In consequence it was decided to abandon this line of treatment notwithstanding the blood test was still positive.

Under tonics and soothing local applications the skin lesions disappeared in about two months. His general health likewise became much better.

From that date until coming under my care—a period of four years—he had two recurrences, both milder than the first attack, and lasting about seven or eight weeks.

When I saw the patient in March, 1920, he had another outbreak which had then persisted for two weeks. He stated that there were no essential differences between this attack and the two preceding ones, excepting that the blebs were somewhat larger and possibly in greater number. The fluid in the fresh, tense lesions was almost clear, none contained any blood or even purulent material. The bullae were typical and seemed to spring from an apparently normal skin. No fever attended the attack. The urine was normal. He ate well, but slept badly on account of arthralgia, especially in joints of lower extremity. These pains seemed to overshadow any discomfort he may have had from the eruption. Laboratory test revealed a negative Wassermann.

The patient was ordered to keep at rest as much as possible and placed on tonic medication with local applications of a soothing and slightly astringing character. Complete disappearance of all lesions resulted at end of the sixth week.

Case II.—A. R., aged thirty-four, farmer, came to my office in October, 1919, on account of a generalized eruption on the body readily recognized as pemphigus. The bullae had made their appearance rather suddenly about ten days before his visit to me. The lesions were isolated, well scattered over body and extremities, some tense, others flaccid, a few drying and in a state of exfoliation. There was no elevation of temperature and no disturbance of kidney function. The belbs occasioned considerable discomfort, especially at night, disturbing sleep.

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*Read before the Louisville Medico-Chirurgical Society.

The patient gave a history of several antecedent attacks of the trouble since the onset in 1912. Nearly all of them were mild and tractable. In one of the milder attacks no medical attention was received, and the disease in the course of a few weeks underwent a spontaneous involution.

Investigation of the family record revealed a number of skin affections, but none of these from his description seemed to have any striking or even faint resemblance to his trouble. I investigated the family history carefully because some writers consider that heredity plays an important part in this disease, but the evidence on this point is not strong; nevertheless cases have been reported in which more than one member of the same family have been similarly affected with this disease.

This patient was managed practically along the same lines as Case I, with a very satisfactory result after a course of six or seven weeks. According to a recent communication there has been so far no recurrence.

The interest in pemphigus largely centers about its causation. There are many conflicting theories to explain the origin of the disease. Those who believe in a microbic origin have so far failed to isolate and identify any organism as the cause. Some authorities have expressed their belief that the trouble was of nervous origin, but this view is conceded to be controversial, since no definite lesions of the nervous system have been found in pemphigus. Again, there are many who have long suspected that the disorder is a cutaneous reaction due to a toxic agent. I must confess that the latter view harmonizes with my own opinion.

It may be of special interest to mention the fact that it is now definitely established that many skin eruptions, for example, urticaria, angioneurotic edema, many eczemas, especially in the young, are true anaphylactic phenomena. A study of various skin diseases from this standpoint has brought to light a number of interesting data, although it must be admitted that much more definite information is yet needed.

An anaphylactic causation is also claimed for dermatitis herpetiformis, and if this be true there exists between this disease and pemphigus a sufficiently close relationship to almost warrant a similar origin for the latter disorder. However, as there is yet a great deal of difference of opinion on the subject, it is entirely safe to say that the essential origin of pemphigus is still an unsolved problem.

A word or two about diagnosis: When the typical lesion of pemphigus is in evidence, the diagnosis is no longer a matter of doubt. The picture produced is usually so characteristic as to make any error in diagnosis inexcusable. However, the inexperienced may mistake for it some of the other bullous affections, such as epidermolysis bullosa, erythema bullosa and dermatitis herpetiformis.

As regards treatment it can be said that no drug has much power in arresting or retarding the progress of the disease, though several deserve a trial in any case of the kind. Local treatment is always of service. Most cases, especially of the benign type, if judiciously managed, will recover in a few weeks or months; but the disease tends to recur in future years, the attacks becoming, as a rule, of less severity. A certain proportion of the cases terminate fatally, especially those occurring in the aged or feeble.

The prognosis should always be guarded.

DISCUSSION:

Henry Enos Tuley: I was very much interested in the essayist's presentation of this subject, because we have had two cases of pemphigus at the Louisville City Hospital. One was a female, aged sixty-five years, who died, and the other a child who recovered.

I was particularly interested in Dr. Hays' statement that pemphigus is prone to recur. I did not know that was typical of this disease, and I doubt whether this question was investigated in the two cases ocurring in the hospital.

I recall a case of very extensive pemphigus which occurred in one of the institutions in Louisville, a child eleven years of age, who was treated by Dr. I. N. Bloom. Everything known, it seemed to me, was used locally and generally to give the child relief. There was not a single area of the body surface that was not involved. We found that a continuous water-bath was the most successful in relieving the pain and discomfort. Some of the bullae were tremendously large; one of them extended on the arm from the point of the shoulder to the elbow, and this area was completely exfoliated when the bulla ruptured. The child finally made a satisfactory recovery.

The woman who died at the City Hospital from emphigus was extremely septic, evidently from absorption of toxins, and death occurred from exhaustion.

Adolph O. Pfingst: I recall having seen a patient with pemphigus of the skin in the Lasar Clinic of Berlin. Professor Lasar said at the time that the disease is rather infrequent, but in the cases that he had obsrved the eyelids were involved.

I saw one case in one of the Eastern hospitals for eye disease in which the diagnosis of pemphigus of the conjunctiva was made although there was no skin involvement at the time. I do not recall on what the physician had based his diagnosis. I recall this case very distinctly because the conjunctiva of the lower lid looked as though it had been skinned and a thin fibruous deposit had formed over the broken areas. There were several areas showing this deposit. Pemphigus of the conjunctiva is usually seen as areas of a grayish deposit, resembling a membrane and involves mostly the lower lid only. The bullae characteristic of pemphigus are seldom seen as the conjunctivae epithelial layer is so thin that the bullae break early and leave the ulcerated surface.

The dangers attending pemphigus of the conjunctive lie in the formation of symblepharon, adhesions between the eyeball and lid and adhesions between the edges of eyelids and the eyeball.

John Edwin Hays (closing): Cases such as those Dr. Tuley has especially referred to in childhood are not considered as true pemphigus; they are due entirely to some septic trouble. There are also cases in adults, especially among those engaged in certain occupations, such as meat cutters or butchers, where eruptions closely simulate pemphigus. These, however, are not true pemphigus, the lesions are due to the absorption of septic material which brings about cutaneous reaction. No part of the skin is entirely exempt from this disease, and, as Dr. Pfingst has stated, the mucous membrane may also be involved. I have seen one case of that nature. The mucous membrane of the mouth, eye, nose, etc., may be involved the same as the skin.

Secondary Parotitis.—Lynn reports three cases of this kind. One patient subjected to a panhysterectomy for carcinoma of the cervix developed parotitis two days after the operation. The second patient developed parotitis nine days after a right nephrectomy was done for nephrolithiasis with pylonephritis. The third patient had an appendicitis, with diffuse peritonitis. Operation was out of the question. With ice to the abdomen, the Fowler's position, Murphy's proctoclysis and infusions of salt solution the general and abdominal conditions improved. Right sided parotitis developed on the seventh day.

A CASE OF APPARENT DEXTROCARDIA—DISPROVED BY INSTRUMENTAL INVESTIGATION.*

By John Walker Moore, Louisville.

This patient is presented to show that the physical methods at our disposal for outlining the heart are at times misleading, and that in all the cardiac abnormalities physical methods should be reinforced by the use of certain instruments of precision, as the Roentgen-ray, electrocardiograph, polygraph, etc.

S. H., Reg. No. 4398, white, laborer, aged twenty-one years, was admitted to the Louisville City Hospital January 29, 1922, with a diagnosis of influenza. His previous history was uneventful save for the fact that he had pneumonia two years ago in his right lung, with good recovery. He denies lues and the Wassermann is negative. From his complaints and the physical findings the diagnosis of influenza was made by the ward staff, and the patient was isolated with those suffering from that disease.

The intern (Dr. Kress) on examining the heart found all the physical signs to be located to the right rather than to the left of the sternum. I examined the patient and confirmed the intern's probable diagnosis, namely, dextrocardia. Our findings were as follows:

Outline: Left border of the heart extends three fingers' breadth to left and four fingers to right of mid-line of sternum. There is a diffuse heaving of the fourth and fifth interspaces synchronous with systole, about three-fourths of an inch internal to right nipple. No visible apex beat to left of sternum. There is no palpable evidence of an apex beat to left of sternum. However, a distinct impact can be felt during systole in fourth and fifth interspace just internal to right nipple. Cardiac action was regular and rapid during the attack of influenza, but has improved considerably since. There were no murmurs, no accentuation. Heart sounds are best heard to right of sternum over the heaving area mentioned.

The lungs at present show only a slight impairment in right apex. However, the Roentgen-ray shows a little haziness in both apices.

An electrocardiogram and x-ray taken and fluoroscopic examination made. To our amazement the electrocardiogram showed practically a normal tracing with a tendency to a right ventricular preponderance. In dextrocardia all the waves in the first lead of an electrocardiogram are inverted. You will notice in the electrocardiographic tracings all wave are upright with an angle of potential difference amounting to +88.

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*Clinical report with exhibition of patient before the Louisville Medico-Chirurgical Society, May, 13th, 1921.

The Roentgen-ray examination shows the outline of the heart to be four fingers breadth to the left and three to the right of the midsternal line, just the reverse of what is found on percussion. The fluoroscopic examination shows the apex beat about three fingers to the left of the sternum.

DISCUSSION:

L. K. Baldauf: The case reported by Dr. Moore is very interesting, and as he says, emphasizes the importance of supplementing physical findings by careful examination with the instruments of precision which we now have at our disposal. Based on the physical findings in this case the diagnosis of dextrocardia seemed absolutely correct, yet instrumental examination showed the heart in the normal position.

To illustrate the advantage of the electrocardiograph: A woman, aged seventy years, recently came to my office markedly dyspnoeic; she could not walk more than ten or fifteen steps without getting out of breath, and every indication pointed to a cardiac lesion. An electro-cardiogram was made which showed the heart to be absolutely normal. Careful physical examination demonstrated that the condition was pulmonary and her symptoms were due to mechanical disturbance of the lung. Under the fluoroscope it was noted that the right segment of the diaphragm did not move. It is important to bear in mind that where you are dealing with a pulmonary lesion fluoroscopic examination gives unsatisfactory information. If you want definite and positive information it can be obtained only by x-ray plates.

Prophylaxis of Eclampsia.—Stratz reports the case of a young pregnant woman whose mother had passed through a severe attack of eclampsia. In the patient the urine was normal, but at the ninth month she complained of occipital headache. Taking into account her mother's experience, he at once instituted prophylactic treatment: milk diet, small doses of chloral, etc. Three days later considerable albumin appeared in the urine, but in a few days even this had disappeared. The milk diet was continued for several weeks, and at term the patient gave birth to a normal child without further symptoms of eclampsia. Stratz thinks that he is justified in regarding this case as one of aborted eclampsia. Slight indications of eclampsia are sufficient to justify treatment before a definite diagnosis is established.

DIAGNOSIS AND TREATMENT OF SYPHILIS.*

By G. W. Payne, Bardwell.

In May, 1905, Schaudinn crowned his lifework by the discovery of the spirochete as the cause of syphilis. His discovery of this almost invisible parasite was due to his incomparable skill in technic and methods of staining. His work and the casual relationship of the spirocheta pallida were confirmed by investigators all over the world.

So far as history is concerned it is a mooted question as to whether syphilis was known in Europe prior to 1493.

At first the disease was thought to be transmitted like any other epidemic, but gradually the venereal nature was recognized, and Farnel, a famous French physician of the sixteenth century, insisted on the necessity of a primary inoculation. Paracelsus observed its hereditary character.

Throughout the sixteenth century the symptoms were thoroughly described. In a large majority of cases of syphilis the disease is transmitted by sexual intercourse, but not by any means all cases, therefore this should not always be designated as venereal disease, as there are many other modes of inoculation, as in surgical operations, midwifery, lip chancre from kissing, and congenital transmission.

The period of incubation is from three to four weeks. Every chancre is composed of a mass of embryonic cells, forming a tumor at the expense of derma and hypoderma. The appearance of the chancre differs on the skin and on the mucous membranes. On the skin it is covered with a crust, due in part to the presence of the stratum corneum. As this stratum does not exist in the mucous membranes, the changes in the mucous epithelium soaked in purulent fluid end in the formation of flabby greyish and diphtheroid membrane.

Let us consider a chancre on the corona of the glands. We find a papule which desquamates, is not painful, does not itch, has a dark color like muscele. After a few days a superficial ulcer appears. Its edges are adherent, thick, and regular. There is not ulceration in the true sense of the word. The floor of the chancre is smooth, varnished, and at times greyish and dipththeroid. On palpating the hard chancre it feels very much like a button under the skin. Every hard chancre is accompanied by adenitis involving several glands. This does not appear before the seventh day, and its localization depends upon the situation of the chancre (groin axilla and neck). The glands are small, hard and usually painless, they do not suppurate unless there is a mixed infection.

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*Read before the Carlisle County Medical Society.

Acquired syphilis is divided into three stages—primary, secondary and tertiary. The primary stage extends from the initial sore until the onset of the constitutional symptoms, which varies from six to twelve weeks. The initial sore appears within a month after inoculation, and appears first as a small red papule, which gradually enlarges and breaks in the center, leaving a small ulcer. The tissues about this becomes indurated so that it finally has a gristly, cartilaginous feel, hence the name, hard chancre. The size of the lesion varies and has no especial characteristics. The glands in the lymphatic region enlarge and become hard. Suppuration may occur in the glands and the lesion as a secondary change. The general condition of the patient is good and there may be no impairment of health.

Secondary Stage—Usually within three months after the appearance of the primary lesion the constitutional symptoms show themselves; they rarely occur earlier than the sixth or later than the twelfth week. Fever may occur before the skin rash; as a rule it is the fever of invasion with the secondary symptoms. It may be mild in character, and continuous or with marked remissions, but the most remarkable form is the intermittent, often mistaken for malaria.

In many cases a pronounced anemia is present giving a muddy pallor to the skin or a light yellow tingling of the conjunctiva or of the skin.

The earliest and most common lesion is a macular or syphilitic roseola which occurs on the trunk, and on the front of the arms. (The face, as a rule, does not show this lesion.) The spots, which are reddish brown and symmetrically arranged, persist for a week or two. There may be multiple relapses of roseola, some times at long intervals. The papular syphilide which forms acne like indurations about the face and trunk is often arranged in groups. Other forms are the pustular rash, squamous syphilide. This rash is copper-colored and not especially confined to the extensor surfaces. In moist regions of the skin, as the angles of the mouth, groins, perineum, axillae and between the toes, the mucous patches occur, which are flat, warty outgrowths, with well defined margins and surfaces covered with a grayish secretion. Frequently the hair falls out, either in patches or by a general thining. The eyelashes and eyebrows may fall out.

With the fever and roseola rash the throat and mouth become sore, the pharygeal mucous membrane becomes hyperemic, the tonsils are swollen, and often present kidney-shaped ulcers with greyish white borders. Mucous patches are seen on tongue, inner surface of cheeks and lip. Hypertrophy of the papillae in various portions of the mucous membrane produces the syphilitic warts or condylomata.

Tertiary Stage—There can be no marked line drawn between the lesions of the secondary and tertiary period. The special affections of this stage are certain skin eruptions, gummatous growths in the viscera and amyloid degenerations.

The late syhilides show a greater tendency to ulcerate and destruction to deeper layers of the skin. They are also more scattered and seldom symmetrical. Gummata may occur in the skin, muscles, brain, lungs, liver, kidneys, heart, testes, adrenals, bones and periosteum. They vary in size from very small bodies to large solid tumors. They are usually firm and hard, but on the skin and mucous membrane, they tend to break down and ulcerate.

The Diagnosis—The diagnosis of syphilis as a rule is not hard, if we will give ourselves time enough for the clinical symptoms to manifest themselves, and with the aid of the laboratory. Right here I would like to sound a note of warning in regard to the laboratory, for it presents pitfalls. The Wassermann reaction is indispensible in syphilis, but it is of more value in the later stages than it is in the initial lesion. A positive result is worth more than a negative one, for in the early cases you may get negative results and still have syphilis. The blood serum reaction in syphilis is not positive as a rule under fifteen days, and this alone if taken as an infallible guide might lead us astray and especially if nitrate of silver or other astringents have been used on the chancre. Never be satisfied with a negative result if clinical symptoms point to syphilis and only one specimen of blood has been examined.

Treatment—The intravenous injections of salvarsan, neosalvarsan or its allied products have been considered, the best method of administering these drugs. Some have used them intra-muscularly and get good results, while others think it too painful. In most cases of primary syphilis a cure can be effected by intensive treatment with neosalvarsan.

In the clinic we use neosalvarsan in graduated doses, beginning with .45 gram, intravenously, repeating every seven days with .6 gm., .75 gm. .9 gm. until five doses are given. We prepare our neosalvarsan solution fresh each time immediately before we use it. It is very important to know you are in the vein before attempting to expel the solution from the syringe, as you will have a very sore arm if the neosalvarsan is expelled into the tissues. With these newer remedies it was thought for a time that the old line of treatment could be dispensed with, however, this has been discarded. We still use mercury and the iodides in connection or following the use of these newer arsenical preparations. Mercury should be used in some form and pushed so that the patient may be brought under its influence as soon as possible, avoiding salivation. Mercury may be given by mouth in the form of the proto-iodide, bichloride and biniodide, or by inunctions in the form of mercurial ointment or by intramuscular injections of a 10% solution of salicylate mercury in albolene, of which 10 minims of this solution can be used every five to seven days.

The iodides are used in connection or alternated with mercury as the case may demand. In visceral lesions or gummatous tumors, the iodides are equal to if not superior to mercury.

After using the treatment outlined above and on having another Wassermann made we find the laboratory report negative, the question arises, shall we continue treatment or rest where we are. The answer is no. We should treat our cases two or three years at intervals before we absolutely dismiss them as cured.

THERAPEUTICS IN CHILDREN.*

By A. L. Kincheloe, Owensboro.

If I were asked what I considered the chief requisite for the successful practice of pediatrics by a competent physician I would answer: The education of the mother. It is impossible to do even fairly good work in diseases of children without proper home cooperation. The simple giving of a direction is never followed out as well as when the reason for it is understood. Much of our beneficial results is due to the therapeutic influences of remedies outside of the realm of drugs. Thus diet, fresh air, cold, heat, massage, electricity, climate, all are important therapeutic agents in the diseases of children. Successful therapy in children involves an understanding, a knowledge of detail, greater perhaps than in any other line of medical work. It not infrequently is an absence of such knowledge on the part of medical men which explains a great deal of the therapeutic doubt existing at the present time. Thus therapeutic doubt, using the term therapeutic in the broad sense, has been in the past boasted of by men considered clever. Text books on pediatrics are not without fault in encouraging careless practice with necessarily an absence of favorable results, especially when they state that treatment is along supportive lines. What constitutes supportive lines in a given case? How is the practitioner to know the author's mind? Or again perhaps it is stated that free stimulation is necessary. Stimulation how, when, why, and by what means is what must be known in order to achieve satisfactory results. Treatment according to the indications of the case does not help a puzzled physician to any great extent. Treatment along the same lines as in adults adds no illumination when a desperately sick child is the patient and moreover is faulty teaching; for the reason that the treatment in such instances should never be the same as in adults. An infant or young child can never be treated the same as an adult, either by drugs or other measures unless we wish more thoroughly to convince ourselves of the uselessness of therapeutic measures. In order to practice therapeutics successfully in children the methods of the physician must be flexible and adaptable. The physician who invariably treats all his cases alike will never do the highest class of work with children. The man, for example, who feeds all his difficult feeding cases after one rule or pattern will be sure to have some other practitioner get his failures which will not be few. A source of disappointment to physicians particularly in the treatment of young infants and children is in the disorders of nutrition. A tremendous amount of patience is required in dealing with such cases. Chronic colitis, tardy malnutrition or nephritis may require months and years for correction and yet furnish satisfactory results. In therapeutics in infants and children particularly as regards the use of drugs two points are to be kept in mind: the benefit hoped for and the possible harm that may result. Thus in bronchitis and broncho pneumonia the ammonium salts are often given in combination with heavy syrups, such as tolu and wild cherry, both possessing little or no expectorant value, but they possess the property of interfering seriously with the patients digestion. Among the many cases contributory to infant mortality the factor of artificial feeding is perhaps the most important. It has been estimated by Holt that eighty-five per cent of all infantile deaths are those artificially fed. Davis found that in Boston in 1911 seventy-four per cent of deaths over two weeks of age were in the artificially fed, and concludes that in Boston the bottle-fed infant is six times likely to die as the breast fed. This shows us the importance of artificial feeding. Much may be accomplished by means of prophylaxis in lowering the mortality in children under five years of age. In these the educated mother's aid is invaluable. She will lay aside prejudices and unfavorable family influences when a physician's direction appeals to her reason. Marasmus, malnutrition and intestinal diseases of summer which directly or indirectly are the cause of thousands of deaths yearly are to a large degree preventable if the right step is taken at the right time through the early appreciation of danger signal on the part of both the physician and the mother. Those who live in larger cities and see the squalor of the thickly inhabited tenement districts have often wondered how human beings can exist under such conditions. We read the statistics relating to crime and death and wonder why children are brought into the world to battle with such adverse conditions. This law of life is too often obscured by professional agitators and the sobs of the sympathetic, for we should remember that it is the surmounting of difficulties that gives us our Lincolns in every walk of life. Not less children, but healthy children, is what our nation needs. Let us then endeavor to rectify by prophylatic measures the hygienic conditions surrounding their lives and then all this prattle about birth control will fade the mists of the morning and we shall emerge from this present sickening miasmus a better nation in every way.

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*Read before the Daviess County Medical Society.

BABY'S SECOND SUMMER.*

By James W. Bruce, Louisville.

What do you mean by the "second summer" and why does this term strike such consternation to the hearts of young mothers? We do not necessarily mean that a baby is a year old, because it may be eight or ten months old and be subject to all the dangers of this period. What we really mean is this —the first period of very hot weather after the baby has begun to take other foods than milk. Now as most babies get very little to eat besides milk for the first eight or ten months of life, we can say that the second summer is the first hot weather that comes after a baby is eight or ten months old. Hot weather depresses the digestive ability of babies very greatly so that foods that agree with them perfectly in cool weather may cause violent indigestion in the summer time. For this reason we must be particularly careful what to feed the baby in the hot months and how the food is prepared.

In considering the subject of the summer care of infants, we can conveniently divide it into four groups:

1. Clothing.
2. Bathing.
3. Water drinking.
4. Feeding.

1. *Clothing.* The baby's clothing must be very light. Nothing will pull down a baby's vitality more than too heavy clothing. The baby should never sweat profusely except after exercise. Many times when a mother removes her baby's clothes we find the skin wet with perspiration. On the other hand, a baby must not be too lightly clothed. I believe that a very thin loosely knitted sleeveless cotton undershirt should be worn all summer even in the hottest weather. This garment will absorb perspiration and give protection to the abdomen that the baby needs. In hot weather a baby should be clothed in a light undershirt, a light cotton slip, and its diaper, and except when going out the slip can be dispensed with.

2. *Bathing.* Bathing is essential to the baby's comfort in summer just as it is to that of the adult. One bath with soap, and on very hot days one or two sponge baths with tepid water will keep the skin clean and tend to prevent the occurrence of maceration about the groin and buttocks. The infant should be carefully dried, of course, after the baths.

3. *Water Drinking.* This is one of the most important points in maintaining good health in the summer months. Babies sweat freely and get thirsty, but they do not know how to ask for water. Give them all the clean boiled water they can drink. They cannot get too much. If they will not take plain water, it can be seasoned with orange or canned pineapple juice and sweetened with saccharin. Saccharin is perfectly harmless and in a strength of ½ grain to 1 pint of water will give sufficient sweet flavor. I find the greatest difference in the amount of water that a baby will drink. Some eight months old babies will drink a pint of water in twenty-four hours, but this is rare. I find it hard to get most babies of eight months to drink more than eight oz., but if they would drink a quart it would do them good. Of course, water must not be given for an hour before or after a meal, as it would then interfere with the taking and digesting of the food.

4. *Feeding.* Our chief consideration in the care of infants in hot weather, of course, is feeding. The food must be carefully selected and carefully prepared. In general the only

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*Read before the Muldraugh Hill Medical Society.

difference between the feeding of infants in hot weather and cool weather is that in hot weather the quantity must be cut down. This is particularly true of the more indigestible foods such as green vegetables and fruits.

The care of milk deserves especial attention. I believe that in warm weather all milk that the baby drinks should be *brought to a boil*. Only in this way can we be sure that it is not contaminated with bacteria. Milk is the most fragile article of commerce, and when we consider the dangers of contamination in its production and transportation, I think that we are playing with fire unless we demand that it shall be sterilized before being fed to the baby.

The subject of milk modification is too large and complicated to be discussed in a paper of this length, and I will only say that we are safe in giving half milk and half water at one month, two-thirds milk and one-third water at four or five months, three-fourths milk and one-fourth water at six or seven months, and whole milk about nine or ten months. Sugar can be added in each case to make 6% total carbohydrate.

The accessory foods are the ones that cause most trouble. If carefully prepared they can be given early with great benefit. Most normal babies of six and one-half months can take well cooked cereals. Cream of wheat should be cooked two hours in a double boiler in salted water the day before and need not be strained. Oatmeal should be cooked four hours the same way and strained to remove the coarse husks that are present in oatmeal. Begin with one teaspoonful of cereal; serve with some of its milk formula and a little sugar; gradually increase until the baby is taking one tablespoonful twice a day. If the cereal upsets the baby when it is first given, it will not be a serious upset, and it is best then to wait two or three weeks and try again. I find that bottle-fed babies almost invariably do better after they have begun on cereal. They gain weight better, they are less apt to be constipated, and their general condition is improved in every way.

Well cooked green vegetables can be given when the baby is seven or eight monhts old. The best vegetables to begin on are carrots, spinach, green beans, and peas. All vegetables should be put in boiling water and cooked until tender (usually forty-five to sixty minutes) and mashed through a colander. This breaks up the cellular structure of the vegetable into a pulp and renders it much more easy to digest. Begin with one teaspoonful of vegetable and gradually increase to one tablespoonful once a day. Spinach is best prepared by steaming in a double boiler without the addition of water to the spinach. There is enough moisture in the spinach to cook it. If spinach is boiled, most of the valuable minerals which it contains will be lost.

Some of the starchy vegetables can also be given when the baby is seven or eight months old, such as macaroni or spaghetti or rice. These must be cooked in the same way as green vegetables. Potatoes had best not be given until one year.

When the baby is one year old soft boiled or coddled egg and rare scrapped beef and well minced chicken or lamb can be added to the diet. The list of green vegetables also can be increased at this time. Two good rules to follow in building up an infant's diet are the following:

1. Never give more than one new article of food in twenty-four hours.
2. Always begin with one tablespoonful of a new food and gradually increase to the desired amount.

Fresh fruit juice should be given every day from the time the baby is three or four months old. Either orange or tomato (canned or fresh) is suitable. This provides vitamins and prevents scurvy.

A typical diet slip for a twelve months baby is as follows:

6 a. m.—Eight oz. of whole milk.

9 a. m.—One oz. of fruit juice—tomato or orange.

10 a. m.—Two or three tablespoonfuls of well cooked cereal; eight oz. of milk.

2 p. m.—Clear meat broth of chicken, beef, or lamb, four or six oz. Meat, one tablespoonful or rare scrapped beef, minced chicken or lamb, or soft boiled or coddled egg. Vegetables, one green and one starchy, one tablespoonful of each. Green vegetables, peas, carrots, spinach, green beans, asparagus tips, beets. Starchy vegetables, potatoes (baked or boiled), rice, hominy grits, macaroni or spaghetti. No milk at this meal. Slice of dry toast or Zweibach.

6 p. m.—Cereal and milk as at 10 a. m.

10 p. m.—Eight oz. of whole milk. The 10 p. m. bottle can be dropped off at any time after a year.

A typical diet slip for an eighteen months old baby is as follows:

7:30 breakfast—Cooked cereal of any kind (three, five tablespoonfuls). Milk eight oz., toast.

9 a. m.—Fruit juice, one oz. of orange or tomato juice.

12 noon, dinner—Soup, clear meat broth of chicken, beef, or lamb, four to six oz. Meat, soft boiled or coddled egg or one and one-half tablespoonsful of minced chicken or lamb or scrapped beef. Vegetables, one green and one starchy, one or two tablespoonsful of each.

Green vegetables, carrots, peas, spinach, green beans, beets, similins, celery (cooked), asparagus tips. Starchy—potatoes (baked or boiled), rice, hominy grits, macaroni, or spaghetti. Toast or dry bread. Dessert—sago, cornstarch, tapioca or rice pudding, gelatin, custard or blanc-mange. No milk at this meal. Rest one and one-half hours after this meal.

2:30 p. m.—Six oz. of milk and a slice of toast. This can be left off after a few months.

6 p. m., supper—Cereal and toast and milk as at breakfast. If constipated, give stewed apples, baked apple, or stewed prunes, or prune juice. I always recommend the cooked cereals even in summer in place of the prepared cereals, as they are more digestible and have more food value.

SYMPTOMATOLOGY OF RECTAL DISEASES.*

By W. L. Mosby, Bardwell.

I need not tell you that this paper is not for the specialist in proctology, but only some observations and suggestion as to the significance of certain rectal symptoms by a general practitioner or "a fellow" like unto yourselves.

My purpose in this paper is to impress upon the general practitioner the importance of a careful and painstaking examination with the patient in proper position and with suitable instrumental aids, to palpate and visualize the field to be explored in order to intelligently arrive at a proper conclusion as to conditions present and an understanding of the underlying pathology, based on symptoms present.

We should place our patient in the right or left Sims position or dorsal as the examiner may choose, thereby bringing muscles to rest and patient at ease, carefully examine and visualize the external field and carefully scrutinizing any deviation from normal.

The index finger protected by a thin rubber cot, and if no cot, may cleanse and seal under nails of finger with soap and anointed with an antiseptic lubricant may be trusted to explore the anal walls. By a slight rotation the finger will easily enter the rectum without pain, especially so if the patient is instructed to gently bear down as the finger or proctoscope is made to enter.

We can now determine the normal or pathologic condition of the mucous membrane and walls as to fissure, ulcers, hemorrhoids polypi, fecal impaction, foreign bodies or the former—normal—would be suggested by a soft velvety feeling with absence of elevation, depression and induration.

If on withdrawal of the examining finger there is no discoloration with mucus, pus or blood we may conclude that there is no severance of covering membrane of the parts explored.

For the use of the proctoscope the exaggerated dorsal, knee elbow, or better the knee shoulder position should be used unless we prefer to utilize the inverted or Hanes position which affords a better opportunity for a more complete illumination of the rectal and sigmoid portion with the rectal valves.

The significance of symptoms referable to the rectum have their definite meaning and should be properly interpreted after a thorough examination.

Unfortunately the term "piles" is used in a generic sense by the laymen and is made to include all pathologic condition at or near the anus, but to the physician has no definite meaning, and we therefore must needs make our own diagnosis unaided by suggestions from the patient.

Pain is the most common symptom in rectal pathology and is the direct cause of a large number of patients seeking medical or surgical aid.

It may be in the lower portion of the rectum, in or near anus, ischio-rectal fossa, etc. It may be sharp, throbbing, continuous or paroxysmal, may be associated with bowel movement, sharp, burning, stinging or may follow immediately after defecation and suggest a lesion in the anus, and suddenly darting or cutting pains between stools have the same significance.

Throbbing pains suggest inflammation which may be anal or perirectal, including ischio-rectal abscess or venous dilatation with phlebitis and hemorrhoids. If temperature is elevated with increased leucocytosis we have definite or strongly suggestive evidence of inflammation.

Dull aching pain either constant or intermittent favors either hemorrhoid, polypus, prolaps, fistula, ulcer, growths (more in benign), such as rectal adenoids and lastly but most important of all is malignancy which should always be sought and carefully scrutinized, that an early diagnosis may be correctly made so, that the patient may have the benefit of the only hope for relief, namely, an early, proper treatment.

Local disease in this important region may be disassociated with local pain and in its seeming absence we may have it reflected into other anatomic structures, such as the sacrum, uterus, vagina, bladder, urethra, penis, scrotum or along the sciatic nerve or into the inguinal region, and then we are compelled to differentiate between pathology in this or some other structures.

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*Read before the Carlisle County Medical Society.

Tenderness in this region suggests abscess formation, fistula or other inflammatory condition.

Spasm or tenesmus is associated with irritation and may be fissure, inflammation, ulcer or abscess near the sphincter muscle.

Hemorrhage is a very frequent symptom of pathology here and should cause us to extend our examination to rectum, including sigmoid if necessary to determine the location of bleeding and definite etiology. Blood may be scant or profuse, pure or diluted with mucus, fresh or clotted, red or dark, as the higher up the source of hemorrhage the darker will be the color and it may be before, with or after defecation. Among the causes for this symptom we should look for hemorrhoids, fissure, ulcer, prolapsus, stricture, malignancy, inflammatory conditions, impaction, polypi, growths, trauma, etc., colitis, amebic dysentery and intussusception may cause hemorrhage, usually in the form of bloody mucus.

Itching is a symptom of considerable frequency and its presence should cause an investigation of local conditions to explain its symptomatology, and should we be unable to find a local pathology then we should look for an acidosis or a acetonuria in which condition there will be a general symptomatic pruritis with other accompanying evidence of a systemic disease, but occurring locally in the absence of a general disturbance we should suspect a fissure, fistula, pile tumor, intestinal parasites, seat worms, etc.

Protrusion may be caused by hemorrhoids, most frequently is, but aside from this common malady we should investigate as to polypus, papilloma, tumefactions and nature and whether descent is continuous or paroxysmal, whether membrane is discolored or normal in appearance and if tumefaction whether from within the sphincter or without.

Contour of anal and ischio-rectal region should be observed as to elevation, depression, discoloration, undue softness, hardness, and if found we must determine its cause, ischio-rectal abscess, inflmmation, condyloma, pile tumor, and should we find a papular elevation near the anal opening, accompanied with a discharge we may be fairly certain of the presence of a fistula in ano.

A history of a discharge should lead us to thoroughly explore the anus and rectum for the cause, and if tenesmus is present it will suggest an inflammatory condition as proctitis as the cause and source of its formation.

Mucus is due to irritation and when irritation is continued inflammation will develop and with inflammation the mucus will become more or less bloody in character, and should lead us to suspect colitis, internal fistula, rectal ulcer or maligancy.

In malignant disease the odor is very characteristic and we will have constipation and diarrhea alternating or diarrhea predominating. Moisture from the rectum causes pruritis and will explain this symptom.

Constipation may be due to mechanical causes, such as coloptosis, floating kidney, prolapsus, stricture, enlarged prostate glands, hypertrophied rectal valves, fecal impaction, foreign bodies and many other local conditions which may even cause a mechanical obstipation, so we should remember that every case is not due to functional conditions and we should not be satisfied until a satisfactory explanation is found.

In the presence of a diarrhea or diarrhea alternating with a constipation, especially in an otherwise healthy subject, we should strongly suspicion a malignancy in the rectum if of long standing unless an ulcer is causing the diagreeable symptom, and if the diarrhea is of the painless, persistent type in an otherwise healthy subject, we must carefully differentiate between a benign and a malignant formation as in the latter the patient's life, your good conscience and possibly reputation may depend upon an early correct diagnosis and the timely institution of a proper treatment.

Character of stools have a diagnostic or a symptomatic significance which should not be overlooked, a narrow ribbon or tape-like or pipe stem stool would suggest stricture, while the large, hard stool of prolonged retention would have a vastly different meaning.

Backache may be induced by malignancy, hemorrhoids, prolapsus, impaction, etc., and pain in limb and especially left side may accompany many forms of rectal disease and may predominate as a symptom in lateral rectal ulcer.

Ischio-rectal abscess may induce radiating pains down limb and cramping pain and scanty menstruation in women with a normal genitalia, will sometimes be explained by the presence of anterior rectal ulcer, fissure, or hemorrhoids.

Bladder irritation with frequent urination may be due to fissure or rectal irritation from local cause. General systemic disturbance may follow or be associated with disturbed functioning of the lower alimentary tract, causing retention and absorption of toxic bowel contents. Pin worms in children may induce restlesness, especially at night with "picking at nose" and "scratching at rectum."

Anal pain and tenesmus may be caused by a foreign body and we should make inquiry as to patient swallowing such a substance as a fish bone or piece of a toothpick or other substance.

The purpose of my paper is to urge the general practitioner to look carefully into the pathology of all rectal complaints and to make his diagnosis only after a painstaking and thorough examination with efficient aids, suitable instruments and with the patient in the proper position to fully explore and visualize the field of disease and thereby give our patient the benefit of improved knowledge and skill, and while we are rendering better treatment we are in return improving our technique by doing methodically what is morally due to our clientele, ourselves and our profession.

PNEUMOCOCCIC MENINGITIS.*

By S. G. Dabney and Stuart Graves, Louisville.

It is unusual for a case of acute pneumococcic lepto-meningitis to show such marked improvement in each days after diagnosis by lumbar puncture and microscopic examination of the spinal fluid as to appear practically normal, although cases of spontaneous cure from pneumococcic and streptococcic meningitis are reported in the literature. In the case submitted, typical symptoms were succeeded by a period of practically normal temperature, pulse and respiration, together with disappearance of evidenees of cortical irritation. The clinical account is furnished by Dr. Dabney as follows:

"E. W. aged 8, was first seen by me at 8 p. m., at the Norton Infirmary. Her father stated that for several years she had been subject to discharge from the right ear. Her health otherwise was good. Two weeks previously she began having pain in her right ear, headache and fever, and these symptoms had continued and increased. Examination showed a well nourished, bright little girl with a profuse and offensive discharge from the right ear and slight swelling back of the ear. Mastoid tenderness was acute and characteristic and pain in this region was the chief complaint, though she also suffered from diffused headache. At this time the only symptom suggesting meningitis was marked rigidity of the neck so that the child could be lifted with the hand at the back of her head without bending the head. The temperature at this time was 103.4, the pulse 132 and there was decided restlessness and discomfort. Except for the rigidity of the neck the symptoms, flushed face, restlessness and general discomfort, could all be accounted for by the fever and the exhausting trip to the city. Aspirin (1.5 grs.) was ordered and directions were given to cleanse the ear with peroxide of hydrogen and normal saline solution every two hours.

"An x-ray picture the following morning by Dr. Bayless confirmed the diagnosis of mastoid abscess. At my request Dr. Gavin Fulton, a pediatrician, saw the child at this time. He could find no symptoms then indicative of meningitis except the stiffness of the neck and he thought that might be due to other causes. Kernig sign was absent. The reflexes were normal, the pupils of the same size and both responsive; there had been no delirium, no convulsions and no vomiting.

"At 2:30 p. m. the day after her arrival, assisted by Dr. Marion Pirkey, I did a mastoid operation on the right side. A large amount of pus and offensive cholesteatomatous material was removed. No exposure of the dura was found. After operation the fever continued to range from 100 to 103, the pulse from 110 to 130 and the headache was still severe, though usually controlled by 10 grs. of bromide of sodium with a small amount of aspirin (not over two grs.). On the following day, February 5th, the nurse recorded delirium for a very brief time, great restlessness and twitching of the face. That night one-twentieth of morphia was given hypodermically and the patient had a fairly good night. Aspirin and bromide of sodium were also given from time to time as headache required. The delirium was very slight and not more than is often seen in children with fever. I saw the patient several times a day and found her always perfectly conscious, bright and hungry.

"On the night of February 6th Dr. Stuart Graves was called to make a spinal puncture at the infirmary and reported to me within a few minutes that purulent meningitis was present and was caused by the pneumococcus. The clinical symptoms continued about the same; temperature from 101 to 103, pulse 120 to 150, restless and flushed face and occasionally brief, almost momentary, delirium. Headache was still severe, but was fairly well controlled by bromide of sodium and aspirin. No clinical symptoms of meningitis except those mentioned. The symptoms continued unchanged until the 10th, the temperature on that day varying from 100 to 103. On the evening of this day ophthalmoscopic examination showed some fullness of the retinal veins and slight blurring of the edges of the optic nerve; doubtless a beginning optic neuritis in each eye. The parents and the child herself were so very earnest in requesting that she be allowed to go home that I reluctantly gave my consent, believing that, if the diagnosis of pneumococcus meningitis was correct, a fatal issue was inevitable, and, if not, the chance of recovery was as good at her home as at the infirmary."

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*Reported before the Monthly Staff Meeting of the Norton Memorial Infirmary from the Laryngological Pathological Service of the Infirmary.

The subsequent history is related in the following letter from Dr. William J. Sweeney, of Liberty, to Dr. Dabney, dated February 24th:

"In compliance with your request regarding the little girl, you will note the following, though very incomplete, as I was able to see her only once a day after her arrival. The day of her arrival found her with normal temperature, pulse 90, complaining only of slight pain in region of ear; pupillary reaction normal, no muscular rigidity, no delirium, general appearance much better than I expected. February 12th, 4 p. m., temperature 100, pulse 94, pupils normal. Had very restless night and day, complaining of general soreness and pains in head and back. Kernig sign present, ear and wound discharging freely, no delirium. February 13th, 3 p. m., temperature 98, pulse 88, respiration 24. Patient had a good night and day's rest; no pains, no rigid muscles, pupils normal; patient very cheerful, general appearance hopeful. February 14th, 11 a. m., temperature normal, pulse 80, respiration 24. Patient had another good night's rest, no pains, no rigidity of muscles, pupils still normal; continued to be very cheerful and continually asking for food. Doctor, her symptoms and general appearance at this time were very encouraging; so much so that I felt hopeful, if not quite sure, that Dr. Graves was mistaken in his opinion. February 15th, 4 p. m., temperature 101, pulse 90, respiration 30 and regular, very restless, arms and legs in constant motion, face flushed, pupils normal, neck rigid and perspiring freely. She continued pretty much in this condition until the 18th. On the 18th I found her with a temperature 103, pulse 96, respiration 35 and irregular, pupils wide open, ptosis of left lid, delirious with tremor or clonic spasms of muscles over entire body. February 19th, 4 p. m., temperature 105, pulse 110 and very irregular, gradually going into coma. Pupils wide open. Eyes set with no response to light. Paralysis of left side with clonic spasms of muscles of right arm and leg. Breathing, Cheyne-Stokes. Patient died in coma February 20th, 8 a. m.

"Doctor, the absent symptoms, with slowness or lateness in the development of others made the case very interesting to me."

When the lumbar puncture was made the first thrust reached the canal and opalescent fluid escaped under considerable pressure into two sterile tubes. Both portions looked alike. The first smear showed scattered polymorphonuclear leucocytes, but no organisms. After the fluid was centrifuged, smears showed many polymorphonuclear leucocytes, no red blood cells and a moderate number of Gram positive diplococci, lancet shaped, encapsulated, intra and extra-cellular. The sediment was streaked on a blood agar plate, giving non-hemolytic, dewdrop colonies after forty-eight hours, smears from which showed discreet, thickly packed Gram positive diplococci. Subcultures coagulated inulin water and were soluble in bile.

SUGGESTIONS FOR MALARIAL CONTROL.*

By B. W. Smock, Greenville.

There is no more adaptable climate for the growth of anopheles mosquitoes in the state of Kentucky than that of Muhlenberg County. It is blessed with a long summer season, with mild unsevere winters, with the one exception of the winter of 1917, there has not been a bad winter for a number of years. The county and district is very poorly drained and there is an abundance of creeks, branches, marshes, bogs and sloughs. The ultimate drainage of the county is Green River, but the topography of the county is such that it prevents rapid drainage which results in the prevalence of standing water about most of the mining camps. In fact, it is almost impossible to find a mining camp in this district which is not cut up with as complicated a network of sloughs as is the city of Venice with its intricate canal system. The houses seen about these camps are poorly constructed ones in a great many instances, with crevices and cracks which will permit horse flies to obtain an entrance to the interior. A screened house is a rarity and there is no effort made to exclude insects from the interior. Mosquito bar or no other effort is made to cover the sleeping individual. Taking all of these things into consideration, one would expect to find a prevalence of malaria throughout the country, but this not the case. In fact, I believe there are mighty few sections of the state where there is as little malaria as there is in this district. Of course, there are some cases of malaria diagnosed by the physicians and a larger number of cases so diagnosed by the individuals themselves, but upon investigation most of these cases have been found to not be true malaria, but more of a general debility from poor nutrition and living conditions.

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*Read before the Muhlenberg County Medical Society.

Assuming that this locality should have a large number of cases of malaria I began to look for the cause why it did not exist. After considerable thought and study I observed that most of the water about the mining camps was copperas, being heavily impregnated with iron sulphide in its various combinations; so I drew the conclusion that the mosquito could not breed in copperas water.

TREATMENT OF MALARIAL FEVER.*

By T. J. Marshall, Bardwell.

As Wellman, in Forchheimer's Therapeusis of Internal Diseases states: "The term malaria is here used to indicate a large and important group of conditions depending upon the presence in the blood and tissues of certain sporozoan parasites, and characterized by periodicity in the symptoms, deposit of peculiar pigment in the parenchymatous organs, especiallly the spleen, amenability to quinine and the dependence for spread upon certain groups of mosquitoes."

There are several types of manifestations of malaria, which I will only mention in passing, namely, benign tertian, quartan, estivo-autumnal, chronic malarial cachexia, malarial hematuria and hemoglobinuria and the pernicious forms.

Knowing the specific cause of malaria and having a remedy that is a specific for this same disease; it would naturally occur that the treatment and cure would be simple, which in theory it is. Malaria is also a preventable disease, and we as medical men know the specific means of preventing this, the most common or frequent aliment we are called on to treat in this locality. Therefore, the question naturally arises, why do we still have this one illness constantly with us? And the answer is, ignorance; ignorance on the part of our law makers and our courts along such lines, and carelessness or indifference on the part of the medical profession.

The late war taught us much regarding the application of hygienic and sanitary measures for the prevention of diseases, among them malaria.

Malaria fever is caused directly by the malarial parasite or plasmodium being transmitted from an infected individual, by the female mosquito of the family Anophelinae, to another non-infected person. Gen. Gorgas stated that, "It has been proved that malaria is carried from person to person by the bite of the female of a particular mosquito, namely, the Anopheles, and we hold that it is conveyed in practically no other way.'

In Southwest Kentucky there are probably very few people who are not carrying malarial infection, and there are many who are infected and show no symptoms unless they receive an overwhelming amount of infection, or whose bodily resistance is lowered from some cause, as over-exertion, sudden chilling of the body, or ill with some other disease. It has been said that man carries the malarial plasmodium during the winter months, and the mosquitoes carry it during the summer.

As malaria is preventable, prophylaxis is the paramount issue.

A case of malarial fever should be a very rare occurrence, and instead of treating a large per cent of the inhabitants in this locality for malaria now as we are doing, this one disease above all others ought to be past history.

By eliminating the mosquito, by destroying the breeding places of the Anopheles, and having every one who is infected with the malarial parasites, whether he shows symptoms or not, take quinine until he is free from the infection, the coming generation would only know malaria by reading history.

Therefore, as General Gorgas has said, "Our sanitary measures are directed toward the destruction of the mosquito. The female Anopheles lays her eggs (about 100 at a time) on the surface of water in which grass and algae are abundant."

Malarial districts may be rendered non-malarial by draining pools of stagnant water and quickening the flow of streams, by cleaning and deepening their channels, keeping all pools well oiled that cannot be drained, clearing all low, damp, shady places, and not allowing water to stand in pails, cans or other receptacles.

Until these measures are carried out it is necessary to resort to other preventive measures, by properly screening all houses and the people remaining in properly screened houses after sunset. Furthermore during the mosquito season, which is also the malaria season, 8 to 12 grains of quinine administered each day is of value.

While the mortality rate is lower from malaria now than in years gone by, and we do not have as many people infected as in former years. This is true for the reason that we live in fairly well screened houses, damp, shady low lands are being cleared of the vegetation, drained and cultivated in crops, and we are living under better hygienic and sanitary condition than formerly, and our people are better educated and more enlightened.

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*Read before the Carlisle County Medical Society.

Occasionally, however, we do have deaths from malaria, and we have far too many infected people, who are sick or incapacitated for performing their daily vocations, because we as citizens have not made this locality free from malaria.

It is difficult to estimate in dollars and cents the loss because of illness that are preventable, malaria being one of the chief.

I want to include here some tacts that have been demonstrated. It has been said that "no man is well who cannot do a day's work efficiently and pleasurably, so that he can contribute to the welfare of the race; who cannot and does not enjoy his day's play; who has not earned and does not secure his night's repose."

In 1919, according to Floyd W. Parsons, there were 36,000,000 workers in the United States who lost 323,000,000 working days from preventable diseases, we can easily estimate the annual loss to the workers and to the nation, and then include the loss to the employers through a decrease in the potential productive capacity. In money figures this is enormous. However, we are living in the malarial district and malaria probably causes more idleness and loss from production than any other one illness. To quote Mr. Parsons again: "In one large Southern district, where a corporation operates many plants, the normal total of malaria cases was 6,000 annually. According to the manager for safety and welfare for the company, doing away with the mosquito has reduced the cases of malaria to less than 50 per cent a year. This remarkable result was accomplished through properly draining streets and alleys, and where practical pools and low lands were drained and filled in. If this could not be done they were covered with oil."

All familiar with the history of the Panama Canal Zone, and the part played by Gorgas in eliminating the mosquito and with it malaria, making it possible for the engineering and mechanical construction to go on and complete the work; converting Panama from a pest hole to probably one of the healtiest places in the world, according to Dr. A. T. McCormack.

If this can be done in other places, so can it be done in Southwest Kentucky and all over the whole South.

Several Southern cities are successfully doing this work now, not only demonstrating the fact that it can be done, but making their cities healthier and better places in which to live.

Medical knowledge is not lacking, but the application of this knowledge is deficient.

If we are to eliminate malaria from our country, a thorough educational campaign must be instituted by all physicians, school teachers, preachers and all who will, backed by our various boards of health, courts, etc. That the whole time of the health office for the county, with his corps of visiting nurses and assistants, will result in a county freer of malaria and a more healthful and pleasant place to live in, and will produce a more vigorous and robust people there is no doubt.

A patient infected with the malarial parasite, should be isolated or kept where mosquitoes cannot get to him.

Quinine is the drug that exerts its influence to free the malarial patient of his infection, it takes quinine in some form to do this.

Each physician probably has his own method of administering quinine, also his favorite form of the drug. I have always found that the sulphate gave me the best results and in acute attacks it requires from 20 to 40 grs. in the first twenty-four or forty-eight hours to control the paroxysms. Quinine should be continued until the blood of the patient fails to show the plasmodium of malaria, which usually requires from four to eight weeks.

In the chronic types of the disease iron and arsenic are valuable in restoring the hemoglobin to the patient's blood.

Participation of the Meninges in Acute Infectious Rhinitis and Tonsillitis.—Goppert has been surprised to find the Kernig sign positive in a large proportion of infants and other children with ordinary acute infectious processes in the nose or throat. He accepts this as evidence that the infectious process had involved the meninges more or less. This explains the unusual restlessness or apathy observed in certain cases, and it also warns that, even if the child has apparently recovered, yet it should be spared unnecessary strain for a time. This may ward off the headache and depression that sometimes follow and long persist after an apparently harmless febrile infection in the upper air passages. The Kernig sign will give the clue to diagnosis and treatment.

Desquamating Dermatoses in Infants.—Hallez remarks that treatment has to reply more on hygiene than on drugs; baths and salves are usually irritating. For internal treatment he advises very cautious epinephrin or thyroid treatment, in small doses, the latter especially when there is intense seborrhea.

COMBATING DIPHTHERIA.*

By Robert Lockhart, Cleveland Ohio,
District Health Commissioner, Cuyahoga County.

The control of the incidence of diphtheria as well as the lowering of the mortality of the disease may be discussed under two divisions. First, educational measures that will tend to prevent the spread of diphtheria, and second, active measures that should be employed by the Health Commissioner and his staff. Under the heading of educational procedures, one of the most necessary things is to impress upon the members of the medical profession the absolute need of an early diagnosis of diphtheria. This is very important for two reasons: first, in order that the diphtheritic patient may at once receive an adequate dose of anti-diphtheritic serum and thus have the best possible chance of recovering from the disease; second, in order that those persons who have been in contact with the patient may at once receive a prophylactic dose of 1,000 units of antitoxin. Right at this point it may be mentioned that there are still a few physicians who take little interest in preventing the spread of disease. Their only thought seems to be to cure the patient after he falls ill. Probably the best way to convince a physician of this type of the necessity of prophylactic treatment is to explain to him that preventive treatment is now being demanded by the better informed lay persons, and that if he wants to keep up the march of progress, he should prevent disease as well as cure it, or what more often happens, merely permit a self-limited disease to run its course. Another argument that should help in presuading this "curative" type of physician that he should practice prevention when battling diphtheria is the fact that 1,000 units of antitoxin is much more likely to prevent the development of diphtheria in one who has been exposed to the disease than is 10,000 or 20,000 units, or in fact any amount of antitoxin, to cure diphtheria after it has developed. He may further be reminded of the well attested truth that after an individual has suffered from diphtheria for over three days, that the curative value of diphtheria antitoxin is practically negligible. Another reason why it is so important to immunize all diphtheria contacts is because the onset of a diphtheria is often insidious and the diphtheria toxins may have almost overwhelmed the patient before the presence of the disease is suspected. This argument will demolish the statement of the doctor who does not wish to immunize contacts but wants the family to watch the contact closely and then notify him if the exposed person develops the disease. It is often difficult enough for a physician to diagnose a diphtheria; why should such a burden be placed on the family? Any straight thinking practitioner should be much prouder of having prevented a diphtheria than of having cured the disease.

Then, again, we have the timid type of family doctor who has read some where about anaphylaxis and gives this as an excuse for not immunizing the diphtheria contact. He should be reminded that adrenalin chlorid 1-1000 is a perfect antidote for an anaphylaxis attack, and that all up-to-date physicians carry a supply with them. He may further be told that anaphylaxis very rarely occurs and resembles a bugaboo more than a danger. An appreciable amount of diphtheria mortality is due to the hesitating, procrastinating type of physician. When he sees a suspicious throat he takes a culture and then waits two or three days for a laboratory report. If it happens to be a diphtheria that he saw, those two or three days of waiting may be fatal to the chances of the patient's recovery. It may be laid down as a good principle of the practice of medicine that any throat that makes us suspicious enough of diphtheria to warrant us in taking a swab for a culture, even more unmistakably warrants us, nay, even impels us, to give at once a curative dose of antitoxin. If physicians would give antitoxin to every patient from whose throat they made a culture, it would greatly help in reducing the mortality of diphtheria.

Another way to combat diphtheria is on all possible occasions, either in conversation with physicians, or by letters, or by pamphlets, to emphasize some of the points in the early diagnosis of diphtheria. For instance, it may be mentioned that there are two types of diphtheria, the mild and the severe. That the latter, or severe type, is readily recognized, since we can easily see the dirty grayish, or yellowish membrane, closely adherent to the tonsils, and anterior and posterior faucial pillars, as well as the soft palate. Further, we elicit the history that there is more membrane in the throat than there was yesterday. Also on inquiry we discover that the throat is more swollen on the outside than it was the day before and that the swelling is nearer to the angle of the jaws today than it was last night. Further, there is marked prostration and little or no appetite. The patient shows unmistakable signs of toxemia, sleeping most of the time, and on being aroused is feebly irritable. If in addition to these signs there is a discharge of serum, or mucous from the nose, there can be no further doubt that we have a most severe case of diphtheria on our hands.

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*Read before the Second Conference of City and District Health Commissioners, Cleveland, Ohio.

It is the mild type of diphtheria that proves the most puzzling. Often the patient is hardly sick enough to be confined to his bed. He may complain of headache, appears listless and has only a slight elevation of temperature. There may be only a slight catarrh of the throat, with no sign of a membrane. More frequently there is a small amount of whitish, doughy exudate on one or other of the tonsils which is readily removed. The only way to make a diagnosis in a case of this kind is by taking a culture. One would hardly be justified in a diagnosis of diphtheria in such a case except during an epidemic. However, if this pultaceous mass on the tonsils also slighty involves the soft palate and the nose is obstructed to some extent, then one should make a tentative diagnosis of diphtheria and administer the specific remedy, diphtheria antitoxin. The possibility of any of these mild throat catarrhs being diphtheria should always be borne in mind, particularly by the physician, especially in the autumn when diphtheria is so prone to occur in epidemics.

With regard to the diagnosis of diphtheritic laryngitis, or membraneous croup, it should be remembered that any croup which lasts over twelve hours after the proper treatment is used is in all likelihood diphtheritic in origin. Certainly, any case of croup that resists eliminative and expectorant therapy over twelve hours should be regarded as a case of diphtheria and at once receive an adequate dose of anti-diphtheritic serum. Any physician who waits twenty-four to forty-eight hours for the report on a culture from a membranous croup is culpable unless he gives antitoxin at the same time that he takes the swab from the throat. A negative report on the culture does not rule out diphtheria since it is often difficult to get a positive culture on a diphtheria that is limited to the larynx.

There are two points about the administration of diphtheria antitoxin that should never be overlooked. First, a concentrated serum made by a reliable firm, and which has been kept on the ice, or at a temperature less than 50 F. should be used. Also the expiration date should still have some time to run. Second, the method of administration of the serum is most important. The antitoxin should always be given intramuscularly and never subcutaneously. Also in desperate cases it is even better to give the serum intravenously. Statistics from contagious hospitals indicate that post-diphtheritic paralysis occur less frequently when antitoxin is given intravenously. The intravenous mode of administration of the serum is the method of choice in all contagious hospitals in the United States.

The active measures that should be taken by the Health Commissioner to combat diphtheria may be enumerated as follows: First, see that the physician has plenty of antitoxin so that he can cure the patient and immunize the family. If he calls you up and inquires whether he should immunize father and mother and grandpa and grandma there is just one reply, and that is, "Yes, by all means." Second, insist on your nurses and sanitary officers being good detectives and running down all "contacts." Then have a swab taken from all contacts. Any of the exposed persons who have a cold, or a sore throat, should be isolated until you have a report on your culture. If the physician desires to take the first release culture, the law permits you to allow him to do so. Always insist on him not taking the first swab before the eighth day after the onset of the diphtheria. It is very rare to get a negative culture before the eighth day. The law provides that the final, or release cuture, shall be taken by the Health Commissioner, or some one deputized by him. It is probably not a good idea to deputize the attending physician for this duty, even though he requests it, except in rare instances.

The method of making the swab from the throat and nose is important. All visible membrane on the tonsils, or pharynx, or faucial pillars, should be brushed over, fairly, firmly, with the swab. In making the swab from the nose two things are necessary. First, the swab should be pushed quickly downward over the floor of the nose, being sure to wipe the posterior surface of the soft palate in its descent.

Second, in removing the swab, be sure that you make a good contact with the back wall of the nasopharynx on your way out. The strictest medical asepsis should be employed in making the swabs.

In outbreaks of diphtheria in schools, or orphanages, those who have been in the same room with the diphthertic case, or who give a history of recent contact with him, should be cultured. If one expects to be successful in detecting all the carriers of the disease these cultures should be made each day, or certainly every other day for at least a week. Those who have sore throats, or bad colds, should be isolated until there is a report on their culture. The Schick test to determine those who are susceptible and those who are immune to diphtheria should be made. In the presence of an epidemic it is unnecessary to have the consent of the parents, or guardian of the children. All employees at the schools, or orphanages, should be cultured. Adult carriers are a big factor in spreading diphtheria as well as many other communicable diseases. All children who give a positive Schick should be at once immunized with 1,000 units of diphtheria antitoxin. They should also be urged to go to their family physician and be permanently immunized against diphtheria with the toxin antitoxin mixtures. The Board of Health in order to encourage physicians to use this most efficacious toxin antitoxin treatment may furnish the toxin antitoxin free of charge. Another good plan is to send consent cards to parents and then the Commissioner can give the toxin antitoxin to all who bring back the signed consent cards.

Another measure which may be used to combat an epidemic of diphtheria is to urge all physicians to report their diphtheria cases promptly. It will help, too, to offer to take cultures on suspicious cases. Parents should be advised through the press to call the physician promptly in case any of the children have sore throats or colds.

The necessity of obeying that section of the law which provides two negative cultures, forty-eight hours apart, in all cases of diphtheria, cannot be too strongly emphasized. Statistics indicate that even after two negative cultures a positive culture is not infrequently obtained. There are probably few Health Commissioners who have not had a member of the family come down with diphtheria after the original case had had two negative cultures.

There is still another provision of the Hughes-Griswold Act that should not be ignored. That is, that printed instructions for the care of communicable diseases must be left at each home that is placarded. The placarding of the house within a few hours after one receives the report of the disease is most helpful. It makes a good impression on the family and makes them more likely to keep quarantine and obey your orders on the care of the contagious disese. Last, but not least, your promptness in acting on his report pleases the physician and encourages him in his early reporting of his cases.

Warning Against Calcium Chlorid in Edema From Heart Disease..—Blum and Schwab describe some cases to illustrate that the cardiac factor in edema is usually not influenced by calcium chlorid, while the drug often has a decidedly deleterious action in heart disease when given for some time and is has failed to promote diuresis.

ALVEOLODENTAL PYORRHEA.*

By H. B. Ray, Tompkinsville.

Many terms have been employed to designate the disease which constitutes the subject of this paper. Among them pericementitis, alveolitis, dentalis, alveolar periostitis, interstitial gingivitis, Rig's disease, Fouchard's disease, pyorrhea alveolaris and others not necessary to mention.

The term pyorrhea can hardly be objected to for the reason that there is pus formation and flow in every case from the very incipiency to the loss of the last tooth. True, in the earlier stages of the disease the quantity is always microscopic, but later it always becomes macroscopic.

The objection to the term "pyorrhea" is "in that the term may also be applied to the production and flow of pus involving other structures and tissues than those of the mouth." It is, therefore, necessary to be more specific and to indicate what structures are involved by the nomenclature of the disease.

Pyorrhea alveolaris is perfectly correct in speaking of the advanced stages of the disease, but as the term "alveolodental" applies to a tooth or teeth and to socket or sockets; it is therefore a term that comprehends all of the pathological conditions of this disease from its earliest incipiency to the most advanced stages, and I have therefore chosen this term more appropriately covering the entire field of pathology of the disease under consideration. I therefore define the term "Alveolodental Pyorrhea" as being "a distructive disease of the supporting structures of the teeth, the specific cause of which is the endamoeba buccalis."

This infection and its results are so widespread that it may be said to be universal, and is the cause of the loss of more than 50% of all of the permanent teeth. This is largely due to the slow and incipient nature of the infection; its presence not being noticed by the patient until irreparable damage has been done and often not recognized until many sound teeth are practically lost.

The successful management of this disease will naturally depend on the early recognition of the specific cause, the manner in which this agent produces the disease processes, and finally a knowledge of the manner in which the specific treatment acts on the causative agent.

Etiology.—The specific cause of alveolodental pyorrhea is chiefly, if not altogether, the endameba buccalis. This germ is present in all cases and the disease is never known to exist without their presence. However, *per se*, this germ cannot produce disease, but contributory factors are necessary to produce the disease, among which I may mention trauma of the gums at the point of attachment of the teeth, lack of oral hygiene and individual resistance are etiological factors. There must be a break in the surface of the gum mucosa before the germ can enter and produce the disease.

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*Read before the Monroe County Medical Society.

This damage to the gum, producing favorable soil for infection may be done in a number of ways, among which picking the teeth, cleansing with hard brushes, the unskillful use of dental floss and the effects of hard particles of food making pressure on the interproximate septum of gum, tartar on the teeth, insiduously encroaching and making pressure on the gum, resulting in inflammation, ill-fitting crowns and improperly finished fillings at the gum margin, and especially between the teeth, making pressure on the gum between the teeth may be mentioned as the chief eitiological factors.

Morbid Process.—On this face of the subject alone a volume might be written, but suffice it to say a tooth is held in its bony socket by a tough peridental membrane, which consists largely of fibers attached to the alveolar wall and to the cementum of the tooth.

Pyorrhea begins in a lesion produced by damage to the edge, tearing loose of the peridental membrane. Such lesions may be prevented from healing until they chance to become infected by endameba, by food particles forced into the lesion from time to time.

Once infection has ocurred, the lesion being inoculated with endameba, they prevent healing and cause the lesion to extend slowly but surely, the peridental membrane being slowly destroyed, leaving the alveolar wall and a part of the cementum of the tooth bare.

As the peridental membrane attaching the alveolar wall to the tooth is destroyed, the bone which can no longer perform the function for which it was intended, supporting the tooth, is slowly absorbed and removed.

The endameba probably do their damage by crawling about among the granulation tissue in search of certain nuclear bodies or cells for food, and incidentally planting and replanting bacteria among the granulations.

Whenever the destructive processes have advanced far enough and the supporting structures have been destroyed sufficiently, the tooth gets loose in its socket. Finally, when there remains no longer sufficient tissue to support it, it either falls out or is removed by the patient himself, or is removed by the dentist.

A lesion once established in the mouth becomes a constant source of infection to any new point of trauma to gum tissue and by this spreading process, the entire mouth sooner or later becomes infected; that is, the teeth and supporting structures. After months or years, one tooth after another is lost until finally all are gone.

The amount of blood lost during the active stage of the disease is estimated by the best authorities to be not less than a gallon a year. The amount of pus produced during the time required for all of the teeth to be removed by this disease is estimated to be not less than eight gallons, and in many cases much more. This alone is sufficient to have an influence on the health and longevity of the patient, to say nothing of the fact that pyorrhoeal lesions constitute a portal of entry to pathogenic bacteria into the blood stream as well as bacterial poisons, or toxins of various diseases so that it is not unreasonable to say that pyorrhea is either directly or indirectly the cause of more systemic diseases than from almost all other causes combined, or if this may possibly be putting it too strongly, I am confident that it is a contributory cause in almost all systemic infections.

Contagiousness.—The endamoeba buccalis, the specific cause of pyorrhea is not supposed to live anywhere outside of the buccal cavity. It is caught, either directly or indirectly, from another person who has the disease by putting more or less of pus containing endamoeba or saliva into the mouth of the uninfected person from the mouth of the infected person. This suggests the importance of the use of the private drinking cup and the abandonment, as much as possible, of the habit in modern society of constant osculation, as prophylactic measures.

Symptomatology.—The symptoms of alveolodental pyorrhea are variable in different individuals. The earliest symptom usually is bleeding of the gums. It may be produced by the least manipulation or force, like brushing the teeth, picking the teeth, or even sucking air between the teeth.

Soreness and unpleasant feeling of the gums and of the teeth on pressure may be present for a long time. Often in the last stages there is very considerable soreness at times.

Bad taste in the mouth, especially in the morning, is present in most cases, but usually it comes on so insiduously and has existed so long that the patient simply accepts it as a natural condition. His attention is often called specially to it by his getting rid of it by appropriate treatment, the relief attracting his attention.

Foul breath is a symptom in all advanced cases and often, from this symptom alone, before even looking at the mouth, a diagnosis of pyorrhea is made with almost absolute accuracy.

A flowing of pus is an ever-present symptom, from the very beginning of the disease, at first microscopic in character; later always becoming macroscopic, showing itself to the naked eye on slight pressure of the gums.

A retraction of the gum tissue, exposing sensitive structures, which are often very annoying to the patient.

In the last stages of the disease, involving a single tooth, the tooth gets loose in its socket and may be tilted about by little force, even the movements of the tongue, and strange to say, even this stage is sometimes reached without the patient ever having given the matter scarcely any attention.

In cases of malocclusion a tooth may often become elongated, rising in the socket an eighth of an inch, or even more.

Diagnosis.—The diagnosis of this disease, from the symptoms just given, is usually easy, especially when we take into consideration the fact that this disease, unlike the accused at the bar of justise, who is supposed to be innocent until proven guilty. With alveolodental pyorrhea the reverse is true, each adult is supposed to have the disease, at least to some extent and in a large per cent of children the endamoeba is present. Its presence, therefore, should be suspected in all cases until the reverse is demonstrated.

A microscopic examination, revealing the endemoeba in any case, makes the diagnosis certain, as they do not exist in the absence of this disease.

It should be understood that pus formation may result from any lesion, producing a break in the soft tissues of the mouth and the amount of pus may be either small or great, but unless endamoeba are present such lesions heal rapidly, when the cause is properly removed, but they do not constitute the disease discussed in this paper. The fact that any such cases should fail to heal promptly under proper treatment suggests an endamoebic infection, and then such cases become real alveolodental pyorrhea. So that in any case where there is doubt the microscope makes the diagnosis sure.

For most practical purposes, the symptoms mentioned, together with the universality of the disease, makes the diagnosis sufficiently accurate and positive.

Prognosis.—The prognosis in this disease, in the earlier stages, is good. In many cases where the teeth, at least several of them, have become more or less loose, under proper treatment, and proper co-operation on the part of the patient, a cure is possible, restoring the teeth to years of usefulness, and elimination of the dangers, both primary and systemic that so often grow out of this disease.

In bad cases the prognosis is unfavorable so far as a restoration of oral health is concerned and a restoration of function, so that "extraction" is the one remedy that offers the patient the only hope of preventing systemic infections of various kinds, or in case any one of a number of such infections have already occurred, his only hope of returning to health is to be found in this radical operation.

Among these systemic infections I may mention prominently, rheumatism, diseases of the stomach and alimentary canal, diseases of the pulmonary apparatus and an almost infinite number of obscure conditions growing out of the absorption of bacteria or their toxines through the oral lesions; in fact, it is safe to say that a majority of sytemtic diseases are either directly or indirectly caused from alveolodental pyorrhea.

I would not have it understood that a restoration of lost tissue can be hoped for in this disease. Such we can no more expect than could the surgeon expect the reproduction of an arm or a leg that had been amputated, but with our present state of knowledge of this disease, its cause and specific treatment, we can expect the disease to be arrested, the lesions to heal and the endamoeba to be eradicated, and with this restoration of the oral tissues to a state of health, the further dangers of systemic infections are as effectively eliminated as they would be by the more radical operation of extraction, which every one admits results in a cure.

Treatment.—The treatment of alveolodental pyorrhea is both surgical and medicinal; by which I mean "that in every case a combination of both is absolutely necessary to success"; and by the surgical I mean that branch of surgery practiced exclusively by the dentist or dental surgeon.

From this it may reasonably be inferred that the treatment of this disease should be referred exclusively to the dental practitioner, but in some cases this is putting it too strongly; the co-operation of the physician may become very necessary, especially in the management of those cases where the systemic condition calls for constitutional treatment.

No case of pyorrhea can be expected to get well so long as there are foreign deposits on the teeth, especially around the margin of the gum, extending often down under the gum causing constant irritation and inflammation.

Necessarily, these deposits must be removed from the teeth and then the teeth must be thoroughly polished, this being done the medicinal treatment is thus indicated.

Fortunately, we have a specific germicide in this disease as much as quinine is a specific against the plasmodium malariae, and this agent is emetine.

Two ends are sought in the treatment of this disease; first, the destruction of the endamoeba buccalis, the specific cause of the disease; and, second, the healing of existing lesions. Since the damage done by the disease consists in the destruction of structures and tissues, it would seem that little repair of the damage done could be expected, since nature can no more reproduce new alveolar bone, or grow gum back on to a tooth from which it has retracted, than she could be expected to reproduce a new permanent tooth or a new limb that had been amputated. Therefore we call a case cured when we arrest the diseased process and heal existing lesions. The healing of these lesions cannot possibly take place until the endamebacide has first done its work, thus giving nature a chance to heal the lesions, which she will positively do with proper co-operation on the part of the patient. Emetine given hypodermically in doses so small as to produce no demonstratable constitutional effect in man furnishes sufficient concentration in the blood to eradicate the endamoeba with which it comes in contact.

Rogers, an able authority on this disease, claims that emetine hydrochloride was amebicidal in dilutions of 1: 100,000 or even less. Less than one-half a grain given hypodermically to a normal sized man should produce more than this concentration of the drug in the patient's blood, and thus change it to an amebicidal fluid.

Emetine is slowly eliminated from the blood, requiring forty-eight hours or more for the elimination of a single dose.

The maximum concentration is reached in about fifteen hours, therefore it is not necessary to repeat the dose oftener than once each twenty-four hours.

Emetine hydorchloride has been used in doses of from one-half to three grains and microscopic search, according to the best authorities, does not show any advantage of the large over the smaller dose, and my own experience in treating these cases is in favor of the smaller dose, repeated once each day for three days, then once every other day until three or more doses were given. The hypo injections would seem at first blush to put the mouth in an ideal condition for the healing of the lesions, but the fact must not be overlooked that pyorrheal pockets have many endamoeba in them that are flourishing on the exudates and cannot be destroyed by reaching them through the blood stream, as they are beyond the reach of the amebacidal blood.

It is here that the emetine solution comes to our relief by washing out the pockets with a normal solution in which a half grain tablet on the emetine has been dissolved. This should be done once each day for three days, then once every other day until the pockets have healed. One-half gr. to one pint of normal salt solution.

Care must be used not to get the solution too strong, as in some cases it has been my personal experience that by reducing the strength of the solution, the pockets began to heal satisfactorily, which had previously remained congested and refused to take on any healthy action under a stronger solution.

For the use of patients who cannot take the time for hypo treatment with emetine, Eli Lilly & Co., and possibly other manufacturing pharmacist, have put on the market a tablet to be used per orem, called "Alcestra Ipecack," which, when taken into the stomach passes on into the intestine, where the pancreatic juice causes its absorption, and it is claimed becomes amebacidal almost as effectively as does the emetine hypodermically. The dose is three tablets three times a day, one hour after meals, and is put up in packages of forty tablets, which is supposed to destroy the ameba and thus place the mouth in proper condition for the healing of the lesions. I have had no personal experience with this form of ipecac.

Reinfection may occur after the mouth has been placed in a proper condition for the cure of pyorrhea, as the germ is universal in its distribution, seeing that it requires weeks and even months for the lesion to heal in bad cases, necessarily, a prophylactic treatment is indicated to prevent reinfection by the endamoeba during the healing process. Such an agent is found in emetine in a normal salt solution in the strength of a half a grain to a pint of the normal salt solution, or one or two drops of the fluid extract of ipecac on a tooth brush after first cleansing the teeth by the accepted methods of flossing and brushing, instructing the patient to leave the mouth without rinsing out the ipecac solution formed by the last brushing, or better still, a few drops of the fluid extract in a normal salt solution, forced between the teeth as the last cleansing agent to prevent any possible reinfection by any stray endamoeba which may have found their way into the mouth.

Every since Mercitan was given to the dental profession, it has been my habit to suppliment the treatment herein outlined with that agent, the details of the use of which I think not necessary to go into; suffice it to say that it consists of an acid and a creamy-like substance which are both applied locally, the pockets being first touched with the acid, and the spungy gums as well, and following this the pockets are filled with the cream with a syringe called the "In-Jecto-Gun." With this the pockets are thoroughly filled and it, in my hands, is a valuable adjunct to the rontine treatment of pyorrhea.

Some enthusiasts claim that the Mercitan treatment alone will effect a cure in all curable cases, but in my hands the emetine treatment is the standard treatment. I make this statement knowing that eminent investigators claim that the endamoeba is not present in all cases; in fact, that the disease exists without them in many cases, but I refuse, in the light of the results that flow out of the emetine treatment to change the views held to in this paper. I had as well reject the germ theory of tuberculosis because eminent men in the medical profession, a few of them, discredit it.

CONGENITAL MALPOSITION OF LEFT KIDNEY WITH BLOOD SUPPLY FROM COMMON ILIAC ARTERY.*

J. A. Kasper, Louisville.

In reviewing the literature concerning abnormalities of kidneys, only two cases similar to our case have been found recorded. Because of its rarity this case is considered worth recording as a simple report at least.

As to the causes of this condition nothing definite can be said, except, as stated by Kupfer, "congenital dislocation is due to a deficiency in the movement of the embryonic rudiments of the kidneys, which, up to a certain period, are formed just in front of the point of bifurcation of the aorta." The left kidney is said to be thus affected more frequently than the right.

Clinically, an abnormality of this nature will not, as a rule, produce any symptoms, and as in this case, the individual may live to reach an old age without any discomfort due to kidney malposition. It is true, however, that movable kidneys predispose to nephritis, but the one here reported was found to be firmly bound to the posterior wall.

The following is a brief summary of history obtained from chart prepared by Dr. Ashby, of the genito-urinary staff at the City Hospital:

9-21-21.—Patient, aged 66 years, entered hospital in much discomfort. Temperature normal. Bladder distended. Catheterized and 20 ounces of urine obtained. Patient was catherterized several times and 36 ounces of urine removed in order to completely empty the bladder. Two days later suprapubic cystotomy was done under gas, as first stage of prostatectomy. On the following day temperature rose slightly and reached 100.6° F. three days later. At this time rectal examination revealed a sponginess just anterior to prostate and on same day there was a profuse flow of pus around the abdominal drain. At this time entire penis became swollen and red, finally abscessing laterally just behind the corona. Abscess ruptured and swelling subsided at once. Pus from suprapubic incision practicaly ceased. Temperature returned to normal. Entire aspect of patient much improved.

9-30-21—As preparations were being made for completion of operation, temperature rose to 103° F. and continued to range from 98° to 103° F. until death—10-22121. Practically no output of urine after 10-16-21.

Laboratory Findings: Pus from abscess about glans penis showed staphylococcus albus and B. coli. 9-22-21-urine: Clear, alkaline, specific gravity, 1.022. Sugar and albumin negative.

9-22-21—Blood chemistry: Urea N. 12.45 mg. per 100 cc. Non-Prot. N. 28.5 mg. per 100 cc.

9-30-21—Blood chemistry: Urea N. 13.0 mg. per 100 cc. Non-Prot. N. 28.5 mg. per 100 cc.

Blood Wassermann—Negative.

Autopsy performed 10-23-21, twelve hours post-mortem. Findings: Well developed, poorly nourished, white male adult, showing median abdominal incision, 8 cm. long, 3 cm. superior to symphysis pubis, partly healed. About glans penis are several abscesses from which yellowish gray, puriform substance exudes. Marked decubitus present. No gross changes found anywhere except about the genito-urinary tract. Both kidneys weigh 200 gms. Left kidney is found at brim of pelvis, slightly at left of sacral promontory. Renal artery is found to branch from left common iliac midway between its bifurcation from the aorta and its division into the internal and external iliacs. Left renal vein enters left common iliac vein. Ureter is 20 cm. long and not dilated. Adrenal is found at upper pole of left kidney. Kidney contains three superficial cortical cysts, each about 3 cm. in diameter. Otherwise kidney is dull reddish gray and smooth. Capsule strips easily and differentiation between cortex and medulla is slight. Right kidney found in normal position. Right renal artery bifurates into two main divisions, the superior branch dividing into three smaller branches, the upper entering the upper pole of kidney and the lower two entering the hilus. The lower branch is subdivided into two branches, the lower of which enters the lower pole of the kidney, while the upper enters the hilus. The bladder is markedly contracted. Mucosa is somewhat swollen and presents a slightly dark reddish gray, mottled appearance. Prostate is moderately firm and fairly smooth. On section, few yellowish patches are found within pinkish gray, fibrous stroma. Behind the prostate is a collection of yellowish gray, puriform substance confined to the posterior cul de sac.

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*Read before the Jefferson County Medical Society.

It will be noted from the findings that the kidneys played no part in producing the discomfort of the individual and are interesting only as a rare finding, although of great importance from a surgical standpoint, especially as concerns the abnormal blood supply.

THE PRESENT STATUS OF RADIATION THERAPY.*

By D. Y. Keith, Louisville

The treatment by Roentgen ray and radium of malignant diseases has passed through the three recognized states of x-ray; namely, optimism, pessimism and realization. The last has often been approached in the minds of the workers and idealism may yet be a reality. Many of you have passed through the early days of x-ray and know the extreme degree of indifference, this was followed by enthusiasm which was succeeded by a sharp reaction and pessimism on the part of many medical men. This pessimistic wave was overcome by the earnest work of many conscientious roentgenologists, many of whom become martyrs in their endeavors to be of service to mankind.

For the past few years it has been possible for a patient to get practically any opinion from the medical men in regard to radiation, i. e., one of enthusiasm or one that would imply that neither radium nor x-ray has any value in the treatment of cancer. At the present time radium has become recognized by the foremost surgeons in large surgical clinics or in surgical centers, and we feel there is little to argue for radium, particularly in the use of cancer of the cervix and in uterine hemorrhage, as in these two conditions the patient receives greater benefit than from any other treatment that has ever been given.

From 1907 to the present may be termed the Wertheim era, 1. As many surgeons began the use of pan-hysterectomy in early carcinoma of the cervix following Wertheim's report of 345 cases. In his hands the mortality in his early work was 18 per cent. In many workers the immediate mortality was even more and the morbidity greater.

In 1910 radium application in the larger surgical clinics or surgical centers with very imperfect technic caused many surgeons to become pessimistic and discourage the use of radium in carcinoma, and caused John B. Deaver to say that radium had no place in the treatment of cancer. He is today one of the few great surgeons who have not gone on record as saying that radium is the method of choice in the greater number of patients presenting for treatment.

The following are letters from surgeons who have recently been sent questions on the treatment of carcinoma of the cervix:

"Relative to your question as to when to apply the radical operation in cancer of the cervix, I would say that I have almost reached the point where I believe radium is the best treatment for all cases regardless of the extent of the lesion. During the last year we have operated upon very few cases; so few, indeed, as to make our statistics almost negligible. I cannot help but feel, therefore, that when we consider the remarkably good results in inoperable cases which follow radiation, the very early case ought to respond infinitely better. I do not feel, however, that I have quite reached the point yet where I am able to take the stand squarely in favor of radiation alone; but I have so nearly come to this point, I very seldom do a radical operation—John G. Clark."

"I have your letter of July 9th in regard to the use of radical (Ries, Clark, Kertheim) hysterectomy for cancer of the cervix. The Werthiem type of operation has today only a very small field of usefulness. Personally, I have not done one in three years. Radium is taking the place of the extensive operation for the cure of carcinoma of the cervix with the exception of very early cases, and it is possible that it will soon be the method of choice in all cases, either alone or combined with operation. For carcinoma of the body of the uterus, total hysterectomy is the operation of choice.—W. J. Mayor."

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*Read before the Jefferson County Medical Society.

At the present time the Roentgen ray treatment or what is termed deep therapy or high voltage, which refers to 200,000 volts or more, is entering the phase of exaggerated enthusiasm, and many of the claims made for the newly developed type of x-ray machines are unquestionably absurd as to their great therapeutic value, and any of us who are conservative or who have sound judgment will have to see the results before we reach that wave of enthusiasm. Those of us who have seen a great number of cancers can not easily become enthusiastic.

These new type machines effect a voltage of from 40% to 50% higher than the old type of machines. The only advantage of the higher voltage is the increase in penetration due to the short wave lengths from the tube by which we are able to give a dose to the deeper tissues in a shorter time. As you all know, radium gives off a ray equal to, if not more efficient, than a voltage of 200,000 or 250,000, and even when applied directly against or entirely surrounded by malignant cells it has not proven a cure for many types of internal malignancies.

Wood (2) has shown experimentally in the Crocker Institute that the higher voltage is no more potent in killing standard animal tumors than are any other types of x-ray, requiring about five erythema doses no matter what the voltage or filtration. As you know, without causing changes in the skin that are detrimental it is impossible to give more than an erythema dose without marked telangiectasis and other unpleasant and uncomfortable skin changes.

We may expect with the employment of the high voltage that there will be a distinct advance in the effectiveness or improvement in the methods of treatment as the proper operation of these high voltages require a great deal of experience and technical knowledge, and will limit the therapeutic application of radiology of cancers to men who have given a great deal of time and earnest work by the older methods and should thereby be able to give the patient more effective radiation.

Most of you are directly interested in the newer phase of radiation or the recent development of radiation. First, we would like for you to understand that the exceedingly high voltages, which is spoken of as the German technic, are seemingly much higher than what we have been using in America. This is due to the difference in the measurements of voltages as we use what is termed a ten-inch splitting spark which is around 100,000 volts, while in Germany the Peak voltage method of measurement is used. To make the American voltage correspond with the German we should multiply by 1.4. In other words, a voltage of 100,000 by our measurement is equivalent to 140,00 volts, or about 40% to 50% difference. This difference is reported by men who have recently visited German clinics and have actually seen the treatment administered.

The problem before us in every patient submitted for treatment is the ability for us to give a lethal dose to all the cancer cells without destroying the surrounding or superimposed cells of normal tissue. It has unquestionably been proven that this can be accomplished by the employment of high voltage, a great skin distance, and heavy filtration with the use of radium in the hollow viscera or an implantation of needles into the tumor. The use of both these methods must be approached very cautiously by those who are sufficiently interested to study x-ray therapy and understand the principles involved. To obtain this, those of us who are using radiation will have to do our very best, be conservative and have the assistance of all the men working in medicine or surgery who are interested only in the best service that can be given to the sufferers of cancer.

Without your co-operation our efforts shall amount to but little, with them we will make advances in the treatment of cancer if it is to be obtained by radiation. It will require some months and years before a standard technic can be adopted by which a certain skin distance with a certain amount of filtration and a definite voltage, a tumor can be reached that is placed so many centimeters below the surface of the skin. This we hope to obtain by practical measurements, physical examination and mechanical appliances. The percentage of radiation reaching the first few centimeters or in fact until all the rays are absorbed can be determined much sooner than what is to be a lethal dose to any particular type of cell. Some workers are endeavoring to determine with the aid of the microscope and the examination of tumor cells that have been subjected to a definite amount of radiation, as to whether the cell will be affected by radiation or be refractory to radiation. If this can be determined we will be able to prognose the results of radiation with a greater degree of accuracy than at present has been obtained. Microscopical sections are made six days after the first application of radium or x-rays.

It has been determined my many workers (3) that the greater proportion of malignant or new cells of any type are not as resistant as are normal cells, the normal cells requiring about five times as much radiation for complete destruction as the malignant cells. If this holds true and we are able to obtain a death dose to tumor cells several centimeters below the surface, we will have made a great step forward. It is a fact of common knowledge that with the superficial malignacies, particular basal cell epithelioma, good results are obtained with either x-ray or radium.

We would like for all of you who have not been interested in the technical side of x-ray to briefly consider the different steps that have been taken to measure radiation in the past. All the men who were doing therapy just before the days of the Coolidge tube and for the first few years after the general adoption of the Coolidge tube, attempted to measure the dose given by photographic strips of Pastille though all would keep track of their voltage spark gap and millamperes. After several years work along this line and measurement by skin distance, filters, voltages and milliamperes it was found that a reproduction of any dose could for all practical purposes be duplicated under similar circumstances by electric measurements, and gradually the use of Pastille's and Kienbock's photographic strips became less and less used until they were entirely replaced by electrical measurements.

At the present time we are going through the same phase with the ionization chamber which has been devised so small that it can be placed in the vagina or rectum during deep therapy in the region of the pelvis, so that the actual dosage which enters the tumor can be measured as well as the dosage that is delivered to the skin. With this little instrument it will be possible for us to determine the amount by per cent of radiation delivered through any number of centimeters of human tissue. With this measurement and the accurate measurements of radium which have been easily established it will be possible to deliver with a certain degree of accuracy any percentage of a skin dose within a certain radius in the pelvis. This is to delivered by radium from within and x-ray from without and the percentage depth lines being overlapped as we hope to show you on the screen.

Ionometric measurments consists of an ionization chamber, a conductor and a measuring apparatus. It is thought by many physicists that the electrical measurements will supplant the ionometric method as they are so much more practical, using the double millimapere meter that has been accurately calibrated and the use of the sphere gap. There is not so much chance or likelihood of mechanical or experimental error.

In the original German technic of deep therapy an exceedingly large dose was given requiring in some instances as much as fifteen hours' time, which was followed by blood changes which required blood transfusion, intensive diarrhea, and many months to recover from the effect of the treatment. This was followed by changes in the skin, telangiectasis, and later in some instances followed by malignacies of the skin. This is the type of report we received from Coolidge and others who visited Germany in the latter part of 1919 and the early part of 1920. Those men we have seen who visited the larger European clinics in the past eight months report that they did not see a single transfusion, and that there were two different schools established as there were in the days of the older technic. One believes in administering the lethal dose to that particular cancer in one treatment and in a great many instances overwhelming the patient's resistance, which required several months for him to recover if he ever did so. No such treatments as this to our knowledge have been given in America, and when it is spoken of as a massive dose it is distributed over three or four days or a week, the patient being prepared as he would for any major surgical procedure. This technic in the early days of high voltage was spoken of as the "Wertheim of Roentgenology."

In the newer technic the greatest point of difference today is what would the skin distance be. In our older technic up to two years ago the average or adopted skin dose was nine inches. This was gradually raised at the beginning of the use of copper filter to twelve inches and with the higher voltage machines twenty inches anode skin distance seems to be the standard, though many in the past few months have been working at even a greater distance up to as much as thirty inches. The greater the distance the greater amount of time is required to deliver an erythema dose, though it is possible to give a more even radiation in the deeper structures with the greater distance. The secondary radiation has a great deal to do with the intensity in the deeper structures. Experience only will prove as to which will be the better procedure, to give a dose at 50 centimeters or at 75 centimeters skin anode distance, and there will be great arguments for each one.

The essential factors are the use of heavy filters, highly penetrating rays to the tumor under treatment, the other factors are secondary. To do this it requires penetrating rays that are of exceedingly short wave length which can only be obtained by voltage of 200,000 or more. At this voltage a higher per cent of penetrating rays are obtained.

It has been proven by physical measurement that only a small portion of ray passes when more than eight or ten millimeters of aluminum filters are used unless the voltage is above 100,000 to 120,000.

Seitz of the Frankfort Frauen Clinic (4) finds measured at ten centimeter depth, the ovarian dose is 30 to 40 per cent, the sarcoma dose 60 to 70 per cent, and the carcinoma dose from 110 to 120 per cent.

In the past six months it has been my privilege and pleasure to have heard medical men who had just recently spent several months in Europe and had visited and seen work in most of the larger clinics.

Their impression as a whole was that deep therapy had come to stay and that we will be using even higher voltages as soon as tubes can be obtained that stand up under such a heavy current. Several cases were seen and examined by these men that had been treated from four to eight years previously for inoperable malignancy of the uterus, cervix and vagina that were in excellent health and free from any symptoms of their malignancies at present, no surgery having been done.

All of the clinics insisted on good results if radiation preceded any attempt at surgery. This opinion was universal in both sarcoma and carcinoma. Their belief was that no sarcoma of any kind should ever be operated upon.

As to the relative advantages of radiology and surgery for the relief of victims of malignant disease "Morton (5) believes there are grounds for thinking that before many years surgery may become auxiliary to radiology. He says evidence is overwhelming that radiology can be of the greatest assistance in dealing with malignant disease, recognition of which should lead surgeons and gynecologists to seek the radiologist's cooperation as soon as the nature of the case is determined before treatment has been applied. This is the only form of cooperation that can be of real help in improving the patient's chances of recovery."

For a number of years roentgenologists have been working earnestly and patiently on postoperative malignant recurrencies or metastasis, believing that a pre-operative raying would have been of much more service. With your support and cooperation a reversal of the application can be tried with hopes of an improvement in results in a greater number of patients with much less suffering. May we expect your support?

We feel assured all of you have realized how hopeless, disastrous and unsatisfactory the treatment of malignancy has been to both patient and physician in too many cases.

From the present indications, with your support, we can in a short while definitely determine if the wave of enthusiasm is to continue and the results in malignancies go down in history as a definite advance, or shall we bow to the superior force of cancer and acknowledge defeat for a time?

We have selected three cases from our files as illustrative of the results that can be obtained in radiation.

Case I was a malignancy of the sigmoid that received only x-ray, the diagnosis was proven by microscopical examination. She is in excellent health today two years after treatment.

Case II was an inoperable malignancy of the pelvis probably beginning in the ovary, microscopically proved after surgical diagnosis, which has received radium only. She is alive one year after treatment, having spent a very comfortable year.

Case III was an adeno-carcinoma of the prostate with microscopical proof in which surgery was done and recurrent symptoms beginning fifteen months later.

He was seen by us three months later, or eighteen months after his recurrence. At this time he was having bleeding at urination, and a hard, palpable mass could be felt above the pubis anteriorly and filling the rectal space on each side of the sacrum. Within two months' time the patient had returned to his business and during the past year has made several trips to the East, and at present is having no discomfort.

Case I—Mrs. W., female, age 32 years. Referred by Drs. Frank and Fulton.

History—Patient has had indigestion and gaseous distress in stomach since twenty years of age. During the past five years the patient has become much worse and especially for the past three weeks. Indigestion occurs at various times and is characterized by great amounts of gas in the stomach, belching and acid eructations. Frequent vomitting which always gives relief. Attacks do not come at any definite period, has no pain only a full feeling in the stomach. Has never been jaundiced. During the past three weeks has vomited practically every meal.

Appetite poor. Tendency to constipation. Experiences severe pain in lower left adomen upon defecation. Much worse during menstrual cycle. Has palpation and shortness of breath at times. No urinary symptoms.

Menses regular. Eight day cycle, moderate amount. For the past five or six years has had severe pain in the lower left abdomen during menstruation. Never any pain in the lower right abdomen. Occasionally menstruation is followed by leukorrhea.

Pelvic examination shows lacerated cervix and perineum. Eyes, head and neck negative. Urinalysis negative. Blood count:

Red cells	4,744,000
Leukocytes	6,000
Poly-morpho-nuclear	53
Eosinophiles	4
Small lymphocytes	33
Basophiles	1

OPERATIVE HISTORY.

Operation by Dr. Louis Frank.

"Gall-bladder small, compressible, no stones, no adhesions. Pylorus normal. Appendix thickened, about four inches long and kinked. It lay to the outer side of and fixed to the cecum. Appendectomy in the usual manner.

"Pelvic examination showed the right tube and ovary normal. On the left side there was a mass which proved to be at the lower end of the sigmoid. This was adhered to the left tube and ovary, to the broad ligament and the uterus. The adhesions were separated and the left tube and ovary then appeared normal.

"The mass in the sigmoid wall was hard and nodular. There were several small glands on the peritoneal surface. One of these was excised and sent to the laboratory for diagnosis.

"As the patient or her husband had not been told of the possibility of such a condition or the gravity of the necessary operative procedure, it was deemed inadvisable to make further surgical procedure at this time. There was no attempt at removal of the growth. Surgical diagnosis was carcinoma of the sigmoid and rectum.

"One month later the patient was discharged, absolutely refusing any operative procedure which might result in an artificial anus or faecal fistula. She has been examined by Dr. Hanes with a protoscope, but never successfully. Post operative convalescence good.

MICROSCOPICAL HISTORY.

"Gross description: Specimen consists of small bits of pale yellow, soft tissue.

"Microscopical description: Section shows fat and connective tissue with a few atypical, glandular structures and many leukocytes, chiefly lymphocytes. No positive evidence of lymphoid tissue.

"Microscopical diagnosis: Apparently metastatic glands.

SUPPLEMENTARY MICROSCOPICAL REPORT TWELVE DAYS LATER.

"There is no lymphoid tissue in specimen received which consists of fat and connective tissue in which are a few atypical, glandular structures lined with columnar epithelium. There is not sufficient evidence to make a histological diagnosis, but the atypical glandular structures away from the primary growth indicate malignancy."

(Signed) STUART GRAVES.

This patient received two series of intensive radiation, using three ports of entry to the anterior pelvis and three to the posterior pelvis, receiving prophylactic applications at one month, two months, four months, and six months intervals. She was in my office today in excellent health, having been able to do more work during the past year than at any time in her life. Fluoroscopic and plate examination of the colon is negative for stricture.

Her weight when treatment was instituted was 119 pounds, her maximum weight since was 155 pounds.

Case II—Mrs. B., female, age 55. Referred by Dr. Irvin Abell and Dr. Edward Speidel. Diagnosis: Adeno-Carcinoma of the ovary, metastasis, inoperable. Index: Exploratory incision.

History—Family history: Father dead, cause unknown. Mother living, age 87, good health. No tuberculosis or cancer in the family.

Past History—Typhoid fever at the age of 48, in bed for six months. She was unable to walk for a long time afterward. Menstruation ceased at the age of 48. Has two children, ages 30 and 32.

Had a fall about three years ago; did not appear to be much injured. Fell from a ladder. No operations.

Present History—Very low in left side of abdomen, has had a pain for two months. At times the pain is sharp, again an ache, and again a sense of fullness. At times this all disappears for as long as three days at a time. There is always soreness in this area. Takes laxatives to keep bowels in good condition.

Frequency of urination ever since she had scarlet fever when a child. No pain. General health good. Appetite good. Patient very large in abdomen for size. Says she is not eating much in order to try to reduce. Has not had to go to bed. No vaginal discharge. No digestive symptoms.

Varicose veins in both legs. (Wears rubber stocking).

Bimanual examination shows vaginal pelvic tumor approximately four inches in diameter. Very tender, apparently fixed. Most probably point of origin ovary.

Diagnosis: Pelvic tumor and varicose veins.

OPERATIONS.

April 13, 1921. "Low median incision. Free fluid in peritoneal cavity. Nodular mass filling pelvis, being most marked in the left side. Growth apparently originates in the ovary, involves uterus which shows not only involvement and direct extension, but nodules throughout the peritoneal covering. Nodules could be found low down on the anterior surface of the uterus in contact with the bladder. The rectum is adhered to and involved at the posterior wall of the growth. Large nodule in omentum, one by one and one-half inches, is removed for microscopical examination. Liver upon palpation is free of metastasis. Pelvic mass is fixed chiefly by adherence to left pelvic wall.

Surgical Diagnosis: Carcinoma of the ovary, metastasis, inoperable.

Microscopical diagnosis: Adeno-carcinoma.

Treatment was by radium only, the application being made in the vagina with high filtration.

At the time we first saw her, five weeks after operation, at the request of Dr. Speidel, no food had been taken for three weeks. Nausea and vomiting were persistent. Her former physicians were using large doses of opiates for relief. Rectal feedings were instituted and the opiates were gradually reduced as relief from pain was obtained from radium.

She is alive today, over one year after operation, and has spent a very comfortable year. Her relief and time would have been extended if x-ray therapy to the pelvis had been done. Only one dose of x-ray was given as the patient was nauseated from treatment and would not return.

Case III—Mr. W., male. Referred by Dr. Irvin Abell.

History—Family history: Father dead, age 39, tuberculosis. Mother dead, age 84, old age. Two brothers dead, age 21, tuberculosis, and age 70, heart failure. One sister living, age 58, good health. Negative for malignancy.

Past History—Diseases of childhood. No serious illness, operations or accidents. Married. Has two boys living in good health. Bowels regular. Appetite fair. No loss of weight.

Present History—For the past three months has had burning at the end of urination and has at intervals noticed peculiar ammonia odor of urine. During night of Friday, October 17, 1919, it was necessary for patient to get up several times to urinate, each time burning and severe pain in abdomen was experienced. Patient thought his trouble was intestinal.

The following morning patient had a slight chill, but went to his office, felt very weak and returned home. Frequency, burning and abdominal cramps kept up during the day. Dr. Veech diagnosed pyelitis and put patient to bed. At that time temperature was 102 and remained the same for three days. Has been in bed ever since.

Clinical diagnosis: Hypertrophied prostate.

OPERATIVE HISTORY.

"Superpubic cystotomy. Removal of large, medium and two small portions of lateral lobes accomplished without difficulty. It was htne discovered that a large mass existed between the bladder wall and the rectum and that this was directly continuous with the prostate itself. Upon catching this with volcellum forceps and making incision into it, its cystic cavity was encountered from which a brownish fluid escaped. This cavity was of such size as to accommodate a small sponge. There was no infiltration either of rectal or bladder wall that could be detected.

"The tumor tissue felt hard and nodular and two pieces each approximately three-fourths of an inch square removed for microscopical examination. There was no bleeding from the prostate bed, but quite free bleeding from the cut surface of the tumor. This was packed with coffee drain saturated with adrenalin and bladder closed with cat gut around drainage tube. Coffee drain emerging through friar tube."

Report of examination by Dr. Abell, April, 1921: "Following operation no frequency or discomfort until two months ago. Frequency has become more marked since that time, now up five or six times at night and every two hours during the day. Occasionally a small blood clot noticed in the urine. Feeling of pressure above the symphysis. Constipated, requiring a laxative every day. Previous to the last two months had no symptoms. Has had an occasional difficulty in passing urine, strain and slight pain. Residual foul, ten ounces. Extensive recurrence. Bladder and rectal pouche filled with hard nodular mass."

This patient received highly filtered rays, using one-half millimeter of copper, aluminum, glass and leather, receiving in all fifteen hours application, using portals of entry through the anterior, posterior and lateral pelvis.

DISCUSSION OF CASES.

In Case I no surgery was done. First, for the reason the magnitude of the surgery had not been anticipated beforehand with an explanation to the family. When this explanation was given to the family and patient, operative procedure was absolutely refused.

Treatment was begun eight weeks following operation. At this time the patient weighed 119 pounds and the prognosis was exceedingly grave. She received one series of treatments in July, 1920, one in August, one in October, one in November and one in March, 1921. Today she is free from any evidence of disease symptomatically.

Following treatment her weight rapidly ran up to 155 pounds and it was with a great deal of exercise consisting of work, gymnastics, and diet that she was able to bring her weight to 135 pounds, her present weight. She was seen today and expressed herself as feeling better and having done more work in the past year than in any period of her life.

Case II was a hopeless case from either surgery or medicine and has received no treatment except an exceedingly long time with heavy screening of radium, no x-ray having been given. At the time treatment was begun, which was six weeks after operative procedure, she had been vomiting persistently and had retained no food for more than three weeks. She is still alive and in fair shape today.

We believe had this patient followed the radium therapy with heavy x-ray as recommended by us and as promptly refused, she would have received even greater results than she has with radium alone.

Case III has gone a year's time since treatment, at which time the prognosis for life was only a few months, and during this time the patient has been free from pain and able to attend to his business except the first few weeks of treatment.

For more detailed study the following classification is advisable:

A. Benign lesion.
B. Skin and appendages.
C. Malignancies.
D. Sarcoma.

A. Benign lesions in which a cure is usually obtained.

1. Tonsils and adenoids.
2. Diphtheria carriers.
3. Tubercular adenitis and tubercular bone sinuses.
4. Toxic thyroid.
5. Persistent thymus infantile.
6. Essential haemorrhage of the uterus.
7. Uterine fibroids and fibrosis.
8. Spleno-myelogenous leukemia.

B. Skin and appendages.

1. Epithelioma, basal celled.
2. Hemangiomata.
3. Lymphangiomata.
4. Birthmarks.
5. Pigmented nevus.
6. Acne vulgaris.
7. Keloid.
8. Lupus.
9. Blastomycosis of the skin.
10. Eczema.
11. Psoriasis.
12. Tenea tonsurans.
13. Lichen planus.
14. Tenea sycosis.
15. Carbuncles.
16. Epithelioma of the cornea.
17. Spring catarrh.
18. Cataract.

1. Carcinoma.

(a) Those greatly benefited, sometimes cured:

1. Cervix uteri.
2. Vagina.
3. Anus.
4. Prostate.
5. Penis.

(b) Relief expected, seldom cured:

1. Oesophagus.
2. Rectum.
3. Colon.
4. Pancreas (primary).
5. Biliary tract.
6. Tongue.
7. Jaw.
8. Stomach.
9. Metastasizing tumors.
10. Pigmented tumors.

2. Sarcomata.

1. Breast.
2. Neck.
3. Hodgkins' disease.
4. Lymphatic leukemia.
5. Body of the uterus.

In the above division (A) a cure can be expected in all the conditions named except a few of the terminal toxic thyroids, and spleeno-myclogenous leukemia. For the past five years many surgeons (No. 8) have been using radium exclusively on the small uncomplicated uterine fibroids as the easier, safer method of cure without mortality or morbidity. From our own experience any fibroid irrespective of size and free from pelvic infection can be made to completely regress under the judicions use of intra-uterine applications of radium and the external use of the Roentgen-rays. This procedure does not require an anesthetic, with very little discomfort during treatment and only a few days spent in the hospital. This is unquestionably the method of choice, paricularly in patients approaching the menopause from 37 to 45 years of age. Myectomy is preferable in the younger patient within the child-bearing age.

The results in "Essential Uterine Haemorrhage" are almost ideal, as many of the adolescent cases of continuous bleeding have been arrested with a two hours' application of fifty milligrams of radium intra-uterine; normal menstruation becoming quickly and permanently established. One of our cases (No. 9) was an absolute cure with one hour and forty minutes application. Normal pregnancies have followed in many individuals following this treatment.

Toxic thyroids and tubercular adenitis respond quickly to radiation, and there is little doubt radium and Roentgen-rays will entirely supplant surgery.

The treatment of tonsils and adenoids is meeting with excellent results by most roentgenologists throughout the country, no appreciable difference being noted whether radium or x-rays are used.

In eczema and similar affections we have had many cases that resisted all medications of the dermatologists to be cured in two or three applications of unfiltered Roentgen-rays and have remained cured for years. The longest cure has been more than eight years since treatment. A prominent dermatologist had treated this patient daily for a period of eighteen months.

CONCLUSIONS.

1. By physical and electrical measurements with 200,000 volts or more we are obtaining an increase in penetration of about 35% to 40% and will be able to deliver a higher dosage to the deeper niternal malignacies.

2. Many predict a much higher voltage and penetration as soon as tubes are made that will uphold such voltages.

3. Pre-operative radiation is preferable to post-operative application.

4. Intensive filtration and increase in anode skin dosage allows a more even radiation to the deeper structures due to scattered radiation.

5. In most of the benign conditions mentioned a cure is to be expected. Only a small per cent of the deeper malignancies can be cured.

6. Only a very small number of malignancies do not respond to radiation.

7. From our experience and the reports from other men who are using copper or zinc filtration with high voltages, results are being obtained with very little suffering that leads us to believe every sufferer of internal malignancy should have the benefit of deep radiation before any surgery is attempted.

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Water Balance in Intestinal Obstruction.—Bacon and his associates report on experimental work undertaken by them to determine the influence, if any, of the water balance of the body on the progress of intestinal obstruction. From an experimental standpoint water deprivation is the most important, if not the sole, factor in the production of the pseudo-uremia of thirst in this light, the condition becomes a rather than of intestinal obstruction. Viewed pseudo-uremia of thrist rather than of intestinal obstruction; an increase in the rate of protein catabolism where insufficient fluid exists, combined with lack of water as a vehicle for excretion of the toxic split products as they accumulate in the blood.

Capillary Blood Pressure and Glomerular Filtration Theory.—Hill and McQueen discuss the modern theory of the secretion of urine, and evidence is brought forward to show that pressure in the glomerular capillaries is low, and that physiologic permeation—not filtration—controls the passage of fluid through the glomeruli. Observations on the circulation in the frog's glomeruli support these conclusions, which are also borne out by experiments which demonstrate the selective action of the epithelium covering the glomeruli.

Chronic Cystic Mastitis.—This paper is too lengthy and ''meaty' to lend itself to condensation. Bloodgood describes chiefly the pathology of the various types of chronic cystic mastitis as exposed by an exploratory incision. A few points made are, the number of benign tumors in women, more than twenty-five years of age, in whom it is necessary to remove only the tumor, is too large to justify the removal of the breast, or to perform the complete operation for cancer without first ascertaining the pathology of the palpable lump by exploratory incision. The educational propaganda is influencing many women to seek immediate advice because of pain or the palpation of a lump in the breast. It is, therefore, of the greatest importance for all members of the profession who assume the responsiblity of diagnosing breast lesions to improve their sense of palpation.

HEADACHES.*

By R. H. Cowley, Berea.

I have chosen headaches as the subject of my paper this evening for two reasons. First, because it is a subject of interest to every doctor, whether general practitioner or specialist, and second, because it has always seemed to me that papers read in meetings such as this should embody as far as possible the results of our experience and not be something which could be read in any text book.

Following this idea out I am not going to take your time by rehearsing all the known causes of headaches, but shall confine myself to the type of headache which I most commonly see among our students at Berea. I appreciate that this leaves out all those headaches which are so commonly met with in general practice and are due to pelvic, stomach, intestinal, kidney and blood diseases and other systemic troubles, but it still leaves me that large field which includes the eyes, accessory sinuses, teeth, ears and other structures which cause headache by pressure and nerve reflexes. While leaving out of our present consideration these headaches due to systemic disturbances it should always be kept in mind that the specialist is very liable to actually forget that a patient with headache has a stomach or kidneys or that he may have had syphilis. We should always be on our guard for these conditions and include the blood pressure, urinary analysis and the blood and spinal fluid examination when more obvious causes are not easily found.

I believe the subject will be more interesting if we imagine that we have a patient before us who is complaining of headache and go over the points which are important in coming to a conclusion as to its cause.

We first ask where the headache is located. If we are dealing with an eye strain the pain will probably be directly in or back of the eyes. The eyeballs will hurt and feel strained. The pain may also be severe in the forehead and temples. In my experience the occipital headache in eye strain is not very common though it is reputed to be so. We will probably be able to get the patient to say that the headache is decidedly worse after using the eyes, especially by artificial light. Of course, any headache is made worse by using the eyes, but a real eye headache is so evidently related to the use of the eyes that this part of the history is very important. Now comes the proof as to the eye strain, and this much I think any general practitioner will be able to do. Eye strain is caused by hyperopia, astigmatism, muscular imbalance, conjunctivitis, or excessive use of an otherwise normal eye. The patient is seated opposite an ordinary test card and the vision determined. If it is less than 6-6 in the absence of opacities the chances are that there is astigmatism or myopia. Of course, such a case needs the care of an oculist. Any pronounced myopia is usually already known to the patient. If the vision is 6-6 the patient may have hyperopia. This is easily determined by simply placing before the eyes a plus lens. If the patient can see as well through the plus lens as without it he is hyperopic and his manifest hyperopia is the strongest lens through which he can see as well as without any lens. The cover test carefully performed is usually sufficiently accurate to lead one to suspect degrees of muscular imbalance which are likely to cause trouble. Conjunctivitis, of course, is easily detected if it is present.

Failing to trace the headache to the eyes we take one by one the other possible causes. The teeth and the ears should be carefully inspected and then the tonsils. We all know that these organs may be the guilty ones. If the teeth have root canals filled or if they are excessively sensitive to heat and cold they should be x-rayed. Even teeth which give no signs of trouble may be guilty. In examining the tonsils it is not enough to depress the tongue and look at the throat. Only the other day I examined the throat of a woman who told me that it was not necessary for me to look for her tonsils since several doctors had told her that she had no tonsils. At first sight this seemed to be true, but on retracting the anterior pillar the small tonsil was found to be filled with foul pus which was easily squeezed out. I want to demonstrate a simple little retractor which is very effective in turning the tonsil out so that it can be seen and the crypts easily expressed. These foul tonsils we all know are often the sole cause of otherwise inexplicable neuralgias and headaches.

Now we come to the most common and the most interesting cause of headaches, the sinuses. Our patient says that his headache is more severe on one side of his head and especially over the eyebrow. We find on inquiry that it is worse in the morning gradually wearing off as the day advances. He sometimes calls it a sun pain for this reason. He says that it is worse when he takes cold, when he stoops to touch the floor. He may say also that after eating his face becomes flushed. One finds that on pressure under the inner side of the brow over the spot where the pully of the superior oblique muscle is attached the bone is more tender than on the other side. This may be so marked that slight pressure causes exquisite pain. The most significant symptom is the loss of the power of concentration. A case will illustrate this. A boy came to me one day in a most depressed state of mind. He told me he would have to give up and leave college. He wanted to study and tried to, but he couldn't keep his mind on his work. He would read a page and by the time he got to the bottom of it he had forgotten what was at the top. He had hardly noticed that he had any headache and it was only after talking with him for some time that I suspected what the trouble was. On examination the septum was found badly deviated, pressing the middle turbinate against the side of the nose. After this pressure was removed by operation his mind cleared up and he went on with his school work successfully. This mental depression or lack of concentration which dates from a fairly definite time and is accompanied by more or less headache is almost pathognomonic of sinus disease. Perhaps I should say not sinus disease, but nasal pressure for in many of these cases there is really no sinus disease at all, but the symptoms are caused by the pressure of a thickened or deviated septum pressing the middle turbinate against the side of the nose. Sometimes the turbinate is found on operation to be flattened out like a piece of paper and when one thinks how exquisitely tender the mucous membrane in this area is it is small wonder that the symptoms are as severe as they are. If any proof of this statement is needed it is found in the fact that the removal of the pressure is followed by relief of the pain sometimes in an almost miraculous way.

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*Read before the Madison County Medical Society.

Now for treatment. We will put the cart before the horse and speak of operative treatment first. As has been said, the trouble is caused not so much by disease as by faulty anatomical relations aggravated, of course, by the swelling of the mucous membrane which blocks what little space there is left. Where these cases have lasted long and are more or less constant the correction of the faulty anatomical relation is the only hope of relief. I used always to remove the middle turbinate in these cases. I found, however, that in some cases where the septum was badly deviated it was quite a formidable job to get the turbinate out without mutilating the tissues around the infundibulum so that after healing there was likely to be contraction which might cause as much trouble as the original condition. At present I am handling these cases in the following way: I first do a submucous resection and after I have the septum perfecty free I break the turbinate bone over so that it is entirely free from the side of the nose. Where this is not possible the turbinate is removed. The nose is packed with iodoform gauze saturated with vaseline, the end being carried up under the turbinate to keep it over toward the septum. The packing is removed after twenty-four hours. Another important observation which has come to my consciousness only recently is that the septum may deviate both ways at once. That is to say the bone in the upper part just in between the middle turbinates is sometimes much thickened. This acts in such a way as to compress both turbinates, and it is these cases which cause the most trouble. In such cases it is next to impossible to remove the turbinates without first doing the septum operation. Even when the case is one of real sinusitis with pus formation it is usually relieved when thorough drainage is established. On the contrary, some of the old chronic cases cannot be relieved by any intranasal procedure and these are the cases which tax the ingenuity of the very best nasal surgeons.

The management of an acute case is quite different from the chronic. In the acute case the trouble is caused primarily by the swelling of the mucous membrane in an otherwise fairly normal nose. The sinus is blocked possibly filled with pus and the problem is not to operate but to shrink down the membrane so as to equalize the pressure. In the office this can best be done with an applicator moistened with cocaine adrenalin solution. Where the patient must carry out the treatment at home he may be given a solution with one part of adrenalin to three parts of 10% argyrol. He is instructed to lie on his back on the bed with his head hanging well down over the edge and to have some one drop a dropper full of the medicine in the offending nostral so that it will reach the very roof of his nose. This procedure should be repeated every hour. The mucous membrane is in this way shrunken and the relief is often very quick and lasting.

Syphilitic Jaundice in Early Second Phase.—Bile pigment was prominent in the urine, but no bile salts were to be found in it in the case described. The test ingestion of a glass of milk showed a positive digestive hemoclasis, thus testifying to insufficiency on the part of the liver. Under mercurial treatment, repose, restriction to a milk diet and hexamethylenamin, the jaundice disappeared in two weeks. It was evidently not a hemolytic jaundice nor jaundice from obstrucition, while the simultaneous appearance of the jaundice testified to their syphilitic origin. No treatment had been taken for the syphilis, no drugs of any kind, previous to the development of the jaundice.

THE DIETETIC TREATMENT OF SURGICAL DIABETES.*

By J. J. Ezell, Hopkinsville.

Diabetics differ, as do normal persons, in many ways, and each patient should be treated according to the findings in his case. Thus individual diabetics vary greatly, not only in their ability to metabolize food without the appearance of sugar, but also as to the factors which may produce symptoms of acidosis. Likewise diabetes may be complicated by other constitutional diseases, such as tuberculosis and syphilis, and it is a delicate problem to determine how far one may go to influence one condition favorably without producing great harm as related to the other.

It is quite apparent that the treatment of diabetes requires special knowledge and constant and intelligent care. Drugs with the exception of the alkalies are worthless, organotherapy in real diabetes is a failure, many of the so-called diabetic foods are fraudulent. The disease is combatted only by management of the diet, which requires as nice discrimination in its use both as to quantity and quality as does any drug. Co-operation on the part of the patient is another requisite. When proper care and satisfactory co-operation can be obtained the results are usually satisfactory.

Thanks to the investigation, both experimental and clinical, of Frederic M. Allen, we are today in better position to treat diabetes than ever before. We no longer simply nurse diabetes, we treat them. Doubtless all of you are very well acquainted with the so-called Allen treatment of diabetes. Very briefly put, its chief and most important features are as follows:

(1) Inauguration of a treatment by a period of absolute fasting, lasting ordinarily from one to four days or five days (in extreme cases for as long as ten days).

(2) Underfeeding, that is, giving much less than is ordinarily considered an adequate ration, for a period of variable length following the period of absolute fasting.

(3) The very careful determination of, and avoidance of exceeding the tolerance of the patient, not only for carbohydrates and proteids (as under former methods of treatment), but also for fats, formerly looked upon not only as harmless, but as actually beneficial to the diabetic, whether of mild or severe degree.

(4) Careful avoidance of an increase in weight unless the patient be decidedly under weight. When called upon to adopt so radical departure from tried and accepted methods, it is only right to ask what are the advantages claimed or demonstrated, which may be secured by its adoption. Very briefly, they are as follows:

(1) More rapid and certain abolition of the glycosure and more important still of its cause, the hyperglycemia.

(2) More rapid and more successful building up of carbohydrate tolerance, or, in other words, the ability to combust carbohydrates.

(3) Prompt and complete relief of the acidosis or acidemia, and as a result prevention of or, if present, the clearing up of that most serious of the results of diabetes, diabetic coma.

If it will do this we will agree that it is a treatment worth while. In the hands of its originator, and in those of many others, among whom Joslin should be especially mentioned, this treatment has saved many patients who under former methods of treatment were beyond relief, while milder cases have been more promptly and satisfactorily improved than they would formerly have been. Especially in diabetics in whom surgical conditions develop, this treatment should prove of more material assistance in lessening the danger which this combination carries with it. In the management of such cases there is three important things for us to remember and keep constantly in mind.

(1) Any infection lessens the ability of the diabetic to burn sugar and therefore increases the already too great sugar content of his blood, or in other words, the hyperglycemia.

(2) The hyperglycemia lessens the patient's powers of resisting or overcoming the infection, and therefore will tend to aggravate the infection. We have thus under these conditions a typical vicious circle.

(3) Both the chloroform and ether, especially the former, not only lessens the diabetic's power of burning sugar, but also, and perhaps for this reason, lessens his power of properly burning his fats.

Their administration, therefore, greatly increases the danger of the development of a serious or fatal acedosis. The danger is especially great in all ill-nourished diabetic with markedly impaired power of burning carbohydrates.

The coma in which diabetic patients die after operation is, often at least, accompanied by the excretion in the urine of large amounts of unoxidized fatty acids, and there is good reasons for believing that the condition is due to the poisoning by these acids.

Therefore it is important before operation to deprive the patient of fats for several days before and after operating.

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*Read before the Christian County Medical Society.

When we come to consider the bearing of these factors on treatment of surgical conditions in diabetics, it is, in my opinion, essential to consider separately diabetics with acute surgical infections and those in whom the surgical condition does not carry with it an element of infection.

Taking up the cases with infections, such, for example, as carbuncles, cellulitis, or other pus condition from which there is toxic absorption in as much as an infection, as indicated above, aggravates the diabetes and the diabetes tends to increase the severity of an infection, our indication is to promptly break this vicious circle.

In such cases I believe the safest and surest course to pursue is to operate even more promptly and more radically than we would in a non-diabetic with a similar surgical condition.

Even though you may believe as I do that starving and dieting the patient will favorably influence the diabetes, you should not forget that the infection, if unrelieved, is likely to more than counteract the effect of diabetic treatment.

Operate first and starve and diet afterwards is, in my opinion, almost invariably the best course to pursue.

Remembering the baneful effects of chloroform and ether on the diabetes and the danger involved in their use, it is my firm conviction that, whenever it is in any way possible, any operation on a diabetic should be done under local anesthesia. If the whole operation cannot be done under local anesthesia, as much as possible should be done under local anesthesia and the rest done under nitrous oxide or, where this is not obtainable, ether should be given for as short a time and in as small quantities as will suffice. While I have no actual experience with morphine-scopolamine in diabetics, I know of no reason why they should be more dangerous in diabetics than in other individuals, and *a priori* would believe them less harmful to the diabetic than ether.

In no case should chloroform be employed. In this connection I would like to express myself as believing that in the class of cases we are now considering delay in operation in order to treat the diabetes usually carries with it greater danger than immediate and radical surgical relief of the infection.

In diabetics with the other type of surgical conditions, namely, those which, while they demand operation, are not cases with present or impending absorption of septic material, cases in which delay in operation will not imperil the patient's life, I believe you should pursue a different course.

I think that every one will agree that a diabetic without a glycosuria or hyperglycemia, with farily high ability to burn sugars, and in a fair state of nutrition is a better surgical risk than one excreting sugar, with a high blood sugar, and perhaps some signs of acidosis and poorly nourished. If this be granted, it follows necessarily that the risk involved in operating will be lessened by first putting the patient in the best possible condition. As it has been demonstrated that this can be done most promptly, surely and efficiently by the Allen treatment, this is the one to be used. You will only have to try it once or twice and you will be convinced.

These necessary, but not urgent, operations should in my opinion, be performed only when by diet, etc., the patient has been put in the best attainable condition.

Cases in which diabetic gangrene develops occupy a middle ground. Doubtless many among you have found that in such cases most satisfactory results are usually obtained if operation is deferred until the glycosuria has been overcome and the patient's carbohydrate tolerance raised. As this is best and most quickly accomplished by the Allen treatment it should be carried out.

Diabetic gangrene, as we all know, rarely develops except in diabetics in whom arterial, renal, hepatic or circulatory disease, one or all, are present as contributory factors.

As these complicating conditions also are usually somewhat relieved by the dietetic treatment and the rest, their presence is an additional reason for waiting before operating. If, however, the gangrenous tissues become infected and there be evidence of toxic absorption, I am in favor of not waiting longer, but would urge prompt drainage or the use of the amputating knife.

There is one more matter of real importance which I am going to discuss as follows:

Do not be satisfied by a mere diminution of the amount of sugar excreted. This is a sign of progress only in the right direction, but not that any real good has been done, so long as there is sugar in the urine there is too much sugar in the blood, and, therefore, your patient is still in a vulnerable condition. I wish the converse were true and that we could say that when the urine becomes and remains sugar free we may conclude that the blood sugar has sunk to normal levels. Unfortunately this is not by any means necessarily the case. Even after the urine becomes sugar free, it is usually advisable to continue the fast for twenty-four hours longer and to diet the patient most rigorously for some days at least.

The amount of sugar in the blood may be determined with sufficient accuracy for our purposes by Epstein's method and apparatus, but unfortunately only a few will supply themselves with the necessary apparatus and take the time to do the analysis. Any well equipped clinical laboratory man should, however, be in a position to make these determinations, and when they are available they are of decided assistance in working out the necessary diet, and in indicating when it is time to operate.

In conclusion, I must ask you to remember that the necessary limitations of time and space have made it impossible for me to more than touch high spots. If this paper shall have aroused in any of you sufficient interest to lead you to look further into this matter of dietetic treatment of your surgical diabetic patients, it will, I am sure, more than repay you.

BOOK REVIEWS

Ephraim McDowell, Father of Ovariotomy and Founder of Abdominal Surgery.

—With an Appendix on Jane Todd Crawford. By August Schachner, M.D. Cloth, 8 vo., p. 331. Philadelphia. J. B. Lippincott Co., 1921.

This octavo volume of 331 pages is printed in the best style of the Lippincotts, which it is needless to say cannot be surpassed. There are numerous illustrations, most of which have already appeared elsewhere.

In the foreword the author gives as the motive which impelled him to undertake this work an incident which occurred in 1911 while he was on a visit to Berlin. He observed an engraving of Ephraim McDowell, Kentucky's great pioneer surgeon, near the entrance to the operating theater of the Frauenklinik, and in conversation with Professor Bumm, of the University, was impressed with his inaccurate information as to some details of McDowell's first ovariotomy. On returning home he turned his attention to the subject, and got the impression that writers upon McDowell's life and achievements had fallen into numerous errors, and had incorrectly interpreted the influences of his environment and education. He also conceived the idea that Mrs. Jane Todd Crawford, the subject of McDowell's first operation, had not received sufficient recognition by previous writers for her heroism in submitting to an untried operative procedure. Following this thought, a chapter of thirty pages devoted to Mrs. Crawford's family history and environment is appended.

There is much repetition throughout the book, for which the author apologizes in the preface. The statement most frequently repeated, varied perhaps in form, relates to an assumed inadequacy and imperfection of all previous biographical studies of McDowell. Indeed the author seems to have persuaded himself that such errors and deficiencies on the part of his predecessors provided the necessity for an additional and exhaustive biography of McDowell. In the foreword he states: "Writers have not only copied from one another without investigation, thus perpetuating errors, but in some instances the same writers have contradicted themselves." Again on page 285 we find the following: "Hence most of the early sketches judged from this viewpoint were not only made prematurely, but seemingly were largely based upon information transmitted from his generation to the next, and apparently accepted without any reservation, or special effort at verification." Again, in the author's appeal to the State Federation of Women's Clubs, published in this volume, we find on page 264 these words: "Doctor McDowell has been more than ordinarily neglected, although the Kentucky State Medical Association did erect in the year 1879 a monument at Danville to his memory." Indeed throughout the entire volume this conception of the insufficiency and imperfection of existing biographies of McDowell seems uppermost in the author's mind, and is reiterated to impress upon the reader the need for a more accurate and complete exposition of the subject.

It is a common observation of historians and biographers from Plutarch to H. G. Wells that the first and chief duty of a student of history is to seek and record the truth, regardless of his personal prejudices or predilections. In such a pretentious volume as the one before us, the author should be sure of his facts before making such statements as those just quoted. Now what are the facts? Who are these crude writers who "have copied from one another without investigation, thus perpetuating errors?" Has "Doctor McDowell been more than ordinarily neglected?" If these statements are untrue the author not only does injustice to the biographers of McDowell, but to the truth of history.

Doctor McDowell died in June, 1830. Twenty-two years later, in 1852, Dr. Samuel D. Gross, then a resident of Louisville, read his biography of Ephraim McDowell to the

Kentucky State Medical Society, afterward published in the volume of American Medical Biography, edited by Doctor Gross. With a logical mind rarely equaled, with industry unsurpassed, and qualifications for investigation and authorship pre-eminent, he gave himself to the task of rescuing McDowell's name from obscurity, and establishing his claims for originality as the "Father of Ovariotomy" throughout the world. He sought out by correspondence and personal interview the associates, relatives and former patients of McDowell, gathered together his published reports of his operations, and wrote a biography which is marked throughout by the accuracy and untiring zeal characteristic of this master surgeon of his times. As to the essential facts of McDowell's life-work, little has been added to, or subtracted from, Gross' original paper.

Twenty-seven years later—in 1879—Professor Gross delivered his classic address at the dedication of the McDowell monument in Danville, in which he gave an appreciation of McDowell's original work in relation to the growth and advancement of the great department of surgery which he founded.

In 1873 Dr. John Davies Jackson, of Danville, made his valuable contribution to the biography of McDowell. Doctor Jackson was an accomplished physician, of exceptional literary and scientific attainments; a graduate of Centre College and of the Medical Department of the University of Pennsylvania. He pursued advanced studies in London and Paris and attained national reputation as a physician of ability and culture. When Doctor Jackson wrote his biography of McDowell, there remained no longer any question as to his priority in ovariotomy, and he directed his investigations to collecting other facts relating to his professional career and to his personality. Doctor Jackson was born and reared in Danville, and practiced his profession there. He had heard of Doctor McDowell since boyhood, and personally knew some of the contemporaries of McDowell. Of Doctor Gross' biography, Doctor Jackson thus writes in the introduction of his sketch of McDowell: "This admirable memoir of Doctor Gross has, we think, hardly attracted the attention it deserves. He has certainly gone over the field, as we have found out, with extraordinary labor and care, and his conclusions and comments upon the character and of the subject of his sketch, as far as we have been able to verify them through conversation with a few surviving contemporaries of McDowell, are most just and discriminating." Doctor Jackson's publication revived the interest in McDowell which Doctor Gross had awakened twenty years previously, and in addition to confirming the accuracy of his investigations into McDowell's life-work, urged upon the profession its duty to recognize in some public way the inestimable value of McDowell's services to science and humanity. His biography concludes with an appeal to this effect, and to the last paragraph is appended a drawing of a memorial tablet with appropriate inscription. Nor did Jackson's effort cease with his publication. Acting through his county society, he carried this appeal for public recognition of McDowell to the Kentucky State Medical Society, and with the endorsement of that society he placed the same appeal before the American Medical Association. The latter body in a resolution of approval and endorsement, referred the proposed action for a monument to the "Father or Ovariotomy" back to the Kentucky State Medical Society.

When Doctor Jackson wrote his memoir of McDowell the time was ripe for some appropriate public recognition of McDowell's great original work. The year before (1872) Dr. E. R. Peaslee had published his exhaustive and classic treatise on "Ovarian Tumors," which he dedicated to the memory of Ephraim McDowell, and placed a steel engraving of McDowell as the frontispiece of the book. Moreover, in an elaborate chapter on the history of the operation in America, he confirmed McDowell's priority, republished his cases, and acclaimed his skill and courage. In addition Gilman Kimball, of Lowell, Massachusetts, the Atlees, in Pennsylvania, and Dunlap, in Ohio, were performing the operation with increasing success, so that here, as in England, McDowell's operation had become established as a recognized surgical procedure.

From this time on innumerable addresses before societies, editorials in journals, correspondence and comments in the medical and lay press, have treated of the life-work and character of McDowell. A grand-daughter of McDowell, Mrs. Ridenbaugh, published a volume, entitled "A Biography of Ephraim McDowell," in which Jackson's memoir is reproduced, and numerous extracts from other papers. Back of all these publications are the fundamental biographical papers of Gross and Jackson, which contain all the essential facts of McDowell's origin, education, professional career, surgical work, personal characteristics, his case reports and life history. If any important errors have been found in these memoirs, or any omission of essential facts necessary to a proper appreciation of McDowell's professional achievements and superior character, the writer of this review is not aware of such errors or omissions. Certainly nothing of intrinsic value has been contributed to the record by the pretentious volume under consideration.

The papers of Gross and Jackson were not written prematurely, and without verification, as this author states; on the contrary they were prepared at the most opportune time when the testimony of McDowell's contemporaries was available, and first-hand knowledge of his character and professional achievements could be acquired. And instead of being "accepted without any reservation, or special effort at verification," we have Doctor Jackson's assurance that upon investigation he found that Professor Gross "has gone over the field with extraordinary labor and care, and his conclusions and comments, as far as we are able to verify, are most just and discriminating."

A quotation from the author's foreword has already been recited in this article in which is found this statement: "Writers have not only copied from one another without investigation, thus perpetrating errors, but in some instances the same writers have contradicted themselves." The latter reference here is to the writer of this review, for we find on page 220 reference to several contributions by the writer to journals and society transactions in which the dates of birth and death of McDowell vary. In one instance the date of death is given as June 20, 1830, and in the other it is stated as June 25, 1830. This discrepancy of five days may be the result of a typographical error, or perhaps an oversight. The errors as to dates are trivial, yet the author devotes almost an entire page to them, and refers to them by annotation in the index.

On page 264 will be found the author's declaration, already mentioned, that "Doctor McDowell has been more than ordinarily neglected, although the Kentucky State Medical Association did erect in the year 1879 a monument at Danville to his memory." Let us briefly consider the facts.

At the meeting of the Kentucky State Medical Society in 1874, Dr. John D. Jackson urged upon the society the claims of McDowell to public recognition, and moved that the society erect a memorial to his memory. This suggestion received the cordial endorsement of the society. In 1875 Doctor Jackson died, at the age of forty-one, and at the meeting of the Kentucky State Medical Society in 1876, the writer of this review, having been the pupil and intimate friend of Doctor Jackson, and then residing in Danville, renewed the motion made by Doctor Jackson. At this meeting a committee known as the McDowell Monument Committee was appointed to proceed to raise the money for the erection of a monument over the remains of McDowell at Danville, the writer being appointed chairman of the committee. This work was carried to a successful culmination. Citizens of Danville provided a square of ground, eligibly located, raised a fund to grade, enclose and ornament with trees the same; the monument was erected, and the remains of Doctor McDowell and his wife were removed from the neglected family burying-ground in the country and reinterred at the base of the monument.

In May, 1879, the annual session of the Kentucky State Medical Society was held in Danville, and the dedication of the monument was the most imposing and impressive event in the annals of the medical profession of Kentucky. The dedicatory address was delivered by Professor Gross before a large audience composed of members of the society, distinguished physicians and surgeons from distant states, officials of the state, and citizens of Danville and vicinity. Upon the speaker's platform were, in addition to the speakers and officers of the society, the President of the American Medical Association, Dr. Lewis A. Sayre; the Governor of the Commonweath, the Secretary of State and other officials, and Dr. Gilman Kimball, of Lowell, Massachusetts, who had performed ovariotomy nearly three hundred times. Among the tributes to McDowell presented on this occasion were letters from Sir Spencer Wells, of London; Oliver Wendell Holmes, T. Gaillard Thomas, J. M. Toner, T. G. Richardson, Theophilus Parvin and others. The society collected with Professor Gross' dedicatory address the letters and other proceedings incident to this occasion, and published the McDowell Memorial Volume, including a steel engraving of McDowell, photograph of the monument, etc.

This handsome publication was distributed to the members of the society, to the relatives of Doctor McDowell, to distinguished surgeons and to leading medical libraries in this country and Europe.

The proceedings of this occasion were widely published in the medical journals, and in almost every instance with editorial comment. The world-wide reputation of the chief speaker, Professor Gross, did much to carry his message to the world. Three years since the Kentucky State Medical Association issued a volume on "The Medical Pioneers of Kentucky," under the editorship of Dr. J. N. McCormack, in which were republished these papers, together with an autograph letter and other interesting data relating to McDowell. As a result McDowell's name and fame have become familiar to surgeons in every civilized country. Upon the pages of every modern treatise on surgery and throughout medical literature his name will be found.

In 1909, when a century had elapsed since McDowell's first ovariotomy, the American Gynecological Society held a meeting in his honor. Since the memorial meeting of 1897 had been held in McDowell's home town of Danville, this centennial celebration by the American Gynecological Society took place in New York City, thus making the event distinctly national in character. Papers were presented by Fellows of the Society upon McDowell's life and character, his original surgical work and its growth in America.

Dr. Herbert R. Spencer, of University Hospital, London, England, presented a paper on the "Evolution of Ovariotomy in Great Britain; Professor S. Pozzi, of Paris, France, read on the "Evolution of Ovariotomy in France," and Professor Hofmeier, of Wurzburg, Germany, treated the same subject in relation to Germany. All of these distinguished foreign surgeons were present and presented their papers in person. Mr. A. H. Doran, ot the Samaritan Hospital for Women in London, sent a paper to be presented, which was read and published. The attendance at this meeting was the largest in the history of the society. The proceedings were published in the Transactions of the Society, and the volume is marked by a distinctive binding bearing the words, "McDowell Centennial." The medical journals carried notices of the meeting throughout the world.

The Southern Surgical Association, one of the most advanced exponents of modern surgery in America, has adopted McDowell as its "patron saint" and carries his portrait as the central figure in its official seal. This is stamped upon the title page of every volume of the Transactions and the official documents of the society.

Space will not permit even an enumeration of other proceedings and publications at home and abroad which honor the name of Ephraim McDowell.. As a matter of fact, none of the great pathfinders in American Medicine and Surgery has received such distinguished recognition from the succeeding generation.

It is apparent that the author of the book under review has made a diligent study of the literature relating to McDowell, and from many of the publications above enumerated he makes quotations; yet at times he seems to detach himself from known facts, and to indulge in such extreme and misleading statements as "Doctor McDowell has been more than ordinarily neglected, etc."

In almost every biographical sketch of McDowell, including those of Gross and Jackson, in presidential addresses and other publications eulogizing McDowell, tribute has been paid to the courage and heroism of Mrs. Jane Todd Crawford, the subject of McDowell's first operation.

At the dedication of the monument in 1879, following Professor Gross' dedicatory address, Professor Lewis A. Sayre, of New York, at that time one of the most commanding figures in the profession, and President of the American Medical Association, made a brief address, which may be found in the McDowell Memorial Volume. His theme was the heroism of Mrs. Crawford, and at the climax of his speech he exclaimed: "All honor to Mrs. Crawford! Let her name and that of McDowell pass down in history together as the founders of ovariotomy."

At the celebration of the McDowell Centennial in New York by the American Gynecological Society the second address on the program was by Dr. Edward P. Davis, of Philadelphia, the eloquent professor of Obstetrics in Jefferson Medical College. His title was, "Mrs. Crawford—a Type of American Womanhood." In this address occurs this sentence: "Great as was McDowell's courage, and worthy as he is of homage, this would have been unavailing but for the equal bravery of Mrs. Crawford."

Although Doctor Schachner reproduces Doctor Sayre's eloquent tribue to Mrs. Crawford (page 289), from which I have just quoted, he repeatedly declares that inadequate recognition has been made of her heroism. Alluding to the early writers, on page 852, he declares: "In short, she (Mrs. Crawford) was as completely ignored as circumstances permitted." Having become obsessed with this idea, he appends to the book a chapter of thirty pages devoted to the birth, family, environment and life history of Mrs. Crawford. This is a worthy service, but it is in total disregard of the facts to declare that this noble woman's memory has been ignored.

On page 222 the author in alluding to the removal of the remains of McDowell and his wife from the family burial ground of the Shelby's to McDowell Park in Danville, makes a statement which must be corrected. The paragraph reads thus: "We were informed by Mr. Isaac Shelby Tevis, a descendant of the Shelbys, who occupied the present Travelers' Rest, the original Travelers' Rest being no longer in existence, that the McDowell grave remained open following the reinterment, as those in charge were unable to decide whether the remains of Mrs. McDowell should be removed with those of her husband. Strange to say, this remained an open question for some years, until it was finally referred to Dr. J. M. Toner, of Washington, D. C., who settled it, by directing that the remains of Mrs. McDowell be removed and placed by the side of her distinguished husband where they naturally belonged."*

The writer of this review is personally acquainted with Mr. Tevis, and enjoyed the friendship of the late Dr. J. M. Toner. Dr. Toner was an intimate friend of Dr. John D. Jackson, and visited Danville during the latter's illness. He also was acquainted with some members of the Shelby family, and it is quite probable that Dr. Toner talked with them of the plans to erect a monument to the memory of their distinguished kinsman. Dr. Toner manifested an active interest in the monument, sent the treasurer of the committee his check for one hundred dollars, and gave the writer by correspondence much valuable counsel as the movement progressed. He never had any official connection with the erection of the monument, which was carried out in all details by the committee of the Kentucky Medical Society.

But the statement quoted above is not true. The writer as chairman of the committee and residing in Danville at the time, personally employed the undertaker who made the removal and superintended the same. Both bodies were exhumed on one and the same day, carried in the same conveyance, and reinterred side by side, at the base of the monument just erected in McDowell Park. Such action as is here imputed to the committee would have shown a callous indifference in performing these delicate offices for the venerated dead of which its members were incapable. Doctor Schachner is inexcusable for publishing such a statement based upon rumor. when he could easily have obtained the facts from official and first-hand sources.

It is to be hoped that other biographies of McDowell will be written. Indeed, it would be well if the American College of Surgeons would establish a lectureship in his honor, similar to the Hunterian Oration of the Royal College of Surgeons in England, in order to keep before the profession his high scientific ideals, the example of his courage and self-reliance, and his exalted conception of his duty to humanity. To do this, however, it is not necessary to discredit the work of those who rescued his name and fame from oblivion, placed a monument over his grave, and won for him the grateful recognition of surgeons throughout the civilized world.

L. S. McMurtry.

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*In a biography of Ephraim McDowell by his granddaughter, Mrs. Ridenbaugh, published in 1890 (p. 106), a similar statement is recorded. It is difficult to determine how this error originated. Mrs. Ridenbaugh does not state, however, "that the McDowell grave remained open following the reinterment," or that "this remained an open question for several years."

The Thyroid Gland—Clinics of George W. Crile, M.D., and Associates at the Cleveland Clinic, Ohio. The Thyroid Gland. Octavo of 228 pages, with 106 illustrations. Philadelphia and London: W. B. Saunders Company, 1922. Cloth. $5.00 net.

This is the first volume of a series to come from the Clinic of George W. Crile and associates, and is devoted to the thyroid gland and its diseases. Every phase is covered exhaustively by that member of the staff best qualified, because of specialized work, to present that phase. The book is strictly clinical and the illustrations are numerous and instructive.

The Ten Commandments of Medical Ethics—By Dr. Frank B. Wynn, reproduced for "The Physician. Artistically printed in colors and handsomely illuminated by an especially designed border illustrating the history of medicine in symbolism. Size 17x22 inches, suitable for framing. Price, postpaid, $2.00. For sale by F. E. Dillan, Publisher, 817 Hume-Mansur Building, Indianapolis, Ind.

The Celebrated Book on the Physician Himself From Graduation to Old Age.—By D. W. Cathell, M.D., published by the author, Emerson Hotre, Baltimore, Maryland. 360 pages. For sale by all medical booksellers and the author. Price $3.00.

This unique work has been highly extolled by Professors William H. Welch, Wilmer Brinton, John B. Murphy, Jacobi, Charles O'Donovan, Senn, Thomas S. Cullen, Roswell Parks, Howard A. Kelly, our lamented Professor Eugene F. Cordell, and a host of other distinguished medical thousands of specialists and general practitioners leaders and scholars; and gratefully praised by all over our country. It has been lauded by many of these because their success in the medical field has been made more certain, more rapid, and more complete by the aid of its suggestions.

Sir William Osler read the edition that preceded this, on his way over from Oxford, to attend the dedication of the Phipps Department of the Hopkins Hospital, and in conversation with the author and a small group of others; after those impressive ceremonies were ended, said: "Where there are plenty of other men who can write other and greater books, there are not three others among us who possess the experience, the industry, and the ability to write such a book on this subject.

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Clark—At the regular meetitng of the Clark County Medical Society the following officers were elected:

President ______________________B. F. Johnson
Vice-President ________________E. P. Guerrant
Secretary-Treasurer ____________Geo. F. Doyle
Delegate _________________________W. A. Bush
Censors__J. G. Young, J. E. Baucon, I. H. Browne

Clay—At the regular meeting of the Clay County Medical Society the following officers were elected:

President _____________________C. T. Ricketts
Vice-President ___________________G. P. Webb
Secretary-Treasurer____________J. L. Anderson
Delegate ______________________J. L. Anderson

Clinton—At the regular meeting of the Clinton County Medical Society the following officers were elected:

President ______________________W. A. Frogge
Vice-President ___________________J. A. Sloan
Secretary-Treasurer __________S. F. Stephenson
Censors —________________________________
__W. A. Frogge, J. A. Sloan, S. F. Stephenson

Cumberland—At the regular meetitng of the Cumberland County Medical Society the following officers were elected:

President __________________________J. E. Bow
Vice-President ___________________J. R. Webb
Secretary-Treasurer _____________W. C. Keen
Delegate _________________________Oscar Keen
Alternate ______________________W. C. Keen
Censors___H. G. Davis, J. G. Talbot, J. H. Myers

Daviess—At the regular meetting of the Daviess County Medical Society the following officers were elected:

President ______________________P. D. Gillim
Vice-President _________________A. J. Gordon
Secretary-Treasurer_____________J. J. Rodman
Delegate__________W. H. Strother, W. L. Tyler
Censors___J. W. Barnhill, Ed Barr, A. McKinney

Fleming—At the regular meeting of the Fleming County Medical Society the following officers were elected:

President __________________________L. Ribelin
Vice-President ________A. M. Wallingford, Jr.
Secretary-Treasurer___________Chas. W. Aitkin
Delegates _________________________________
A. M. Wallingford, Jr., A. S. Robertson, C. L. Carr.
Censors __________________________________
E. T. Runyan, A. S. Robertson, W. S. Reeves

Franklin—At the regular meeting of the Franklin County Medical Society the following officers were elected:

President ________________________G. A. Budd
Vice-President ________________W. H. Evans

Secretary-Treasurer-------------F. W. Mastin
Delegates--------E. C. Roemele, C. T. Coleman

Green—At the regular meeting of the Green County Medical Society the following officers were elected:

President ----------------------J. C. Graham
Vice-President ------------------J. J. Booker
Secretary-Treasurer ------------S. J. Simmons
Delegate -------------------------B M. Taylor
Censors-----------J. J. Booker, J. C. Graham

Harlan—At the regular meeting of the Harlan County Medical Society the following officers were elected:

President ....W. E. Riley
Vice-President ------------------M. L. Gunn
Secretary ----------------------E. C. Wilhite

Hardin—At the regular meeting of the Hardin County Medical Society the following officers were elected:

President -------------------------H. R. Nusz
Vice-President ------------------R. T. Layman
Secretary-Treasurer-------------D. E. McClure
Delegate ----------------------J. M. English
Censors ---------------------------------
J. M. English, C. C. Carroll. C. W. Rogers

Harrison—At the regular meeting of the Harrison County Medical Society the following officers were elected:

President -----------------------J. E. Wells
Vice-President -------------------J. M. Rees
Secretary ---------------------W. B. Moore
Treasurer -----------------------B. B. Petty
Delegate ----------------------W. B. Moore
Censor -----------------------M. McDowell

Knox—At the regular meeting of the Knox County Medical Society the following officers were elected:

President -----------------------Leslie Logan
Vice-President --------------------John G. Tye
Secretary-Treasurer --------------F. R. Burton
Delegate ---------------------------F. R. Burton
Censors ---------------------------------
G. H. Albright, B. P. Jones, F. R. Burton

Letcher—At the regular meeting of the Letcher County Medical Society the following officers were elected:

President -----------------T. D. Fitzpatrick
Vice-President ---------------Owen Pigman
Secretary-Treasurer -------------Bert C. Bach
Delegate ---------------------G. D. Johnson
Censors ---------------------------------
T. R. Collier, B. F. Wright, P. Y. Pursifull

Lewis—At the regular meeting of the Lewis County Medical Society the following officers were elected:

President -------------------------T. B. Ginn
Vice-President --------------------C. E. Stout
Delegate ---------------------H. M. Bertram
Secretary -------------------------J. D. Liles

Lincoln—At the regular meeting of the Lincoln County Medical Society the following officers were elected:

President ---------------------T. A. Harmon
Vice-President ------------------T. F. Peyton
Secretary-Treasurer -----------Lewis J. Jones
Delegate ----------------------M. M. Phillips
Censors ---------------------------------
M. Lee Piper, W. J. Childress, D. B. Southland

Logan—At the regular meeting of the Logan County Medical Society the following officers were elected:

President ----------------------L. H. Turner
First Vice-President ---------S. S. McReynolds
Second Vice-President-------------J. L. Russell
Secretary-Treasurer -------------Walter Byrne
Delegate -----------------------Walter Byrne
Censors--A. R. Kempt, E. C. Morgan, W. R. Burr

Lyon—At the regular meeting of the Lyon County Medical Society the following officers were elected:

President -----------------------J. H. Hussey
Vice-President -----------------T. L. Phillips
Secretary-Treasurer ---------W. G. Kinsolving
Delegate ---------------------H. H. Woodson
Alternate -------------------------C. H. Linn

McCreary—At the regular meeting of the McCreary County Medical Society the following officers were elected:

President -------------------------C. E. Cain
Vice-President ------------------Fred E. Peck
Secretary-Treasurer -------------R. M. Smith
Delegate -------------------------R. M. Smith
Censors -------------A. Bradley, S. S. Foster

Madison—At the regular meeting of the Madison County Medical Society the following officers were elected:

President -----------------------W. K. Price
Vice-President ---------------T. H. Rutledge
Secretary-Treasurer-------------T. A. Mahaffey
Delegate -------------------------O. F. Hume
Censors--M. Dunn, R. H. Cowley, H. G. Sandlin

Metcalfe—At the regular meeting of the Metcalfe County Medical Society the following officers were elected:

President --------------------P. W. Bushong
Vice-President ------------------W. G. Depp
Secretary-Treasurer -----------H. R. Vanzant
Delegate ------------------------J. A. Yates
Alternate ---------------------James Taylor
Censors ---------------------------------
James Taylor, S. R. York, Geo. T. Reid

Montgomery—At the regular meeting of the Montgomery County Medical Society the following officers were elected:

President ---------- R. E. May
Vice-President ---------- C. B. Duerson
Secretary-Treasurer ---------- S. E. Spratt
Delegate ---------- J. F. Lockhart
Alternate ---------- J. F. Knox
Censors ----------
P. K. McKenna, T. F. Lockhart, T. H. Sultz

Oldham—At the regular meeting of the Oldham County Medical Society the following officers were elected:

President ---------- H. B. Blades
Vice-Presilent ---------- R. B. Cassady
Secretary-Treasurer ---------- S. J. Smock
Delegate ---------- R. B. Cassady
Censors ----------
E. F. Weeks,, R. B. Pryor, P. L. Queensbury

Owsley—At the regular meeting of the Owsley County Medical Society the following officers were elected:

President ---------- B. F. Tye
Secretary-Treasurer ---------- C. M. Anderson
Delegate ---------- W. H. Gibson

Pike—At the regular meeting of the Pike County Medical Society the following officers were elected:

President ---------- Z. A. Thompson
Secretary-Treasurer ---------- H. G. Stambaugh

Rowan—At the regular meeting of the Rowan County Medical Society the following officers were elected:

President ---------- T. A. E. Evans
Vice-President ---------- John Cavins
Secretary-Treasurer ---------- G. C. Nickell
Delegate ---------- G. C. Nickell
Censors ----------
G. C. Nickell, John Cavens, T. A. E. Evans

Russell—At the regular meeting of the Russell County Medical Society the following officers were elected:

President ---------- H. S. Gehrken
Vice-President ---------- T. B. Tarter
Secretary-Treasurer ---------- J. B. Scholl
Delegate ---------- L. D. Hammond
Alternate ---------- J. B. Tarter
Censors ----------
W. G. D. Flanagan, J. S. Rowe, L. D. Hammond

Shelby—At the regular meeting of the Shelby County Medical Society the following officers were elected:

President ---------- A. W. Weakley
Vice-President ---------- W. P. Foreman
Secretary-Treasurer ---------- Vernon R. Jones
Delegate ---------- Lowry Beard
Censors ----------
W. P. Hughes, E. T. Eversole, T. E. Bland

Taylor—At the regular meeting of the Taylor County Medical Society the following officers were elected:

President ---------- F. I. Bucker
Vice-President ---------- C. E. Murphy
Secretary-Treasurer ---------- C. V. Heistand
Delegate ---------- J. L. Atkinson
Alternate ---------- O. H. Shively
Censors ---------- B. T. Black

Todd—At the regular meeting of the Todd County Medical Society the following officers were elected:

President ---------- R. L. Boyd
Vice-President ---------- B. E. Boone
Secretary-Treasurer ---------- W. E. Barlett
Delegate ---------- C. W. Gower
Censors ----------
E. W. Weathers, B. E. Boone, J. F. Standard

Whitley—At the regular meeting of the Whitley County Medical Society the following officers were elected:

President ---------- J. D. Adkins
Vice-President ---------- Garfield Howard
Secretary-Treasnrer ---------- C. A. Moss
Delegate ---------- L. B. Croley
Censors ----------
L. B. Croley, E. B. Stansifer, W. J. Smith

Bourbon—At the regular meeting of the Bourbon County Medical Society the following officers were elected:

President ---------- W. C. Ussery, Paris
Vice-President ---------- L. R. Henry, North Middleton
Secretary-Treasurer ---------- Milton J. Stern, Paris
Delegate ---------- Wm. Kinney, Paris
Censors ---------- J. A. Kilkey, J. T. Brown, J. A. Orr

Caldwell—At the regular meeting of the Caldwell County Medical Society the following officers were elected:

President ---------- L. O. Young, Cobb
Vice--President ---------- W. P. Morse, Princeton
Secretary-Treasurer ---------- R. W. Ogilvie, Princeton
Delegate ---------- J. W. Moore, Princeton
Censors ---------- W. L. Cash, J. B. Sory, Frank Walker

Carter—At the regular meeting of the Carter County Medical Society the following officers were elected:

Secretary-Treasurer ---------- L. G. Nickell, Grayson

Fayette—At the regular meeting of the Fayette Connty Medical Society the following officers were elected:

President ---------- J. P. Warren, Lexington
Vice-President ---------- W. D. Reddish, Lexington
Secretary-Treasurer ---------- S. B. Marks, Lexington
Delegates ----------
S. B. Marks, J. W. Scott, C. C. Garr, Lexington
Censors ---------- David Barrow, J. C. Lewis, R. J. Estill

Fulton—At the regular meeting of the Fulton County Medical Society the following officers were elected:

President ---------- R. N. Whitehead, Fulton
Vice-President ---------- Geo. A. Crafton, Fulton

Secretary-Treasurer____H. T. Alexander, Fulton
Delegate___________Hugh Ed Prather, Hickman

Henry—At the regular meeting of the Henry County Medical Society the following officers were elected:
President________W. F. Asbury, Campbellsburg
Vice-President_______R. C. Newkirk, Smithfield
Secretary-Treasurer___Owen Carroll, New Castle
Delegate ___________O. B. Humston, Franklinton
Censors____Webb Suter, O. P. Chapman, M. Bell

Hickman—At the regular meeting of the Hickman County Medical Society the following officers were elected:
President ________________J. B. Mahan, Clinton
Vice-President __________T. L. Lamkin, Clinton
Secretary-Treasurer______E. W. Howell, Oakton

Jefferson—At the regular meeting of the Jefferson County Medical Society the following officers were elected:
President __________Charles Farmer, Louisville
Vice-President________C. G. Arnold, Louisville
Secretary ______________J. B. Lukins, Louisville
Treasurer_____________ E. L. Pirkey, Louisville

Jessamine—At the regular meeting of the Jessamine County Medical Society the following officers were elected:
President __________T. R. Welch, Nicholasville
Vice-President____W. H. Mathews, Nicholasville
Secretary-Treasurer _________________________
______________J. A. Van Arsdall, Nicholasville
Delegate____________ T. R. Welch, Nicholasville
Censors____________W. H. Mathews, D. A. Penic

Livingston—At the regular meeting of the Livingston County Medical Society the following officers were elected:
President_________________J. L. Hayden, Salem
Vice-President____________J. E. Fox, Smithland
Secretary-Treasurer_____E. Davenport, Hampton
Delegate _______________T. M. Radcliffe, Tiline
Censors ___________________________________
Roy Woddell, A. A. Casper, J. B. Markey

McCracken—At the regular meeting of the McCracken County Medical Society the following officers were elected:
President ________________O. R. Kidd, Paducah
Vice-President__________C. E. Purcell, Paducah
Secretary ______________E. R. Goodloe, Paducah
Treasurer______________P. H. Stewart, Paducah
Delegate _____________Vernon Blythe, Paducah
Censors______________L. P. Malloy, H. P. Sights

Mercer—At the regular meeting of the Mercer County Medical Society the following officers were elected:
President ________________H. M. Baxter, Bohon
Vice-President____D. H. Coleman, Harrodsburg
Secretary-Treasurer__J. Tom Price, Harrodsburg
Delegate________________F. D. Haston, McAfee
Censors ____________________________________
J. B. Robards, C. W. Sweeney, T. A. Wash

Ohio—At the regular meeting of the Ohio County Medical Society the following officers were elected:
President _____________Willard Lake, McHenry
Vice-President _______S. W. Crowe, Centertown
Secretary-Treasurer______Oscar Allen, Cromwell

Owen—At the regular meeting of the Owen County Medical Society the following officers were elected:
President____________J. H. Christman, Owenton
Vice-President___________J. W. Botts, Owenton
Secretary-Treasurer_____K. S. McBee, Owenton
Delegate_____________Geo. Purdy, New Liberty
Censors _________J. W. Taylor, A. E. Threlkeld

Perry—At the regular meeting of the Perry County Medical Society the following officers were elected:
President _________________J. D. Grant, Hazard
Secretary _____________M. E. Threlkeld, Hazard
Delegate___________________A. M. Gross, Hazard

Pulaski—At the regular mectting of the Pulaski County Medical Society the following officer was elected:
Secretary _____________Carl Norfleet, Somerset

Washington—At the regular meeting of the Washington County Medical Society the following officers were elected:
President ___________M. W. Hyatt, Springfield
Vice-President________J. B. Overall, Springfield
Secretary-Treasurer____S. R. Boggess, Mackville
Delegate____________S. F. Hamilton, Springfield
Censors _________________________A. Y. Hatchett

Monroe—The regular meeting of the Monroe County Medical Society was held in Tompkinsville the third Thursday in February.

H. B. Ray read a paper on "Alveolo-Dental Pyorrhea." This paper was thoroughly discussed by all present.

H. B. RAY, Secretary.

Ballard—At the regular meeting of the Ballard County Medical Society the following officers were elected:
President ____________________W. A. Ashbroke
Vice-President ___________________J. D. Rollen
Secretary-Treasurer __________G. L. Thompson
Delegate______________________G. L. Thompson
Censors ______________________________________
J. W. Meshew, Ezra Titworth, Bob Overby.

G. L. THOMPSON, Secretary.

Henry—Henry County Medical Society met on May 1st at the office of Owen Carroll. Present: W. F. Asbury, W. W. Leslie, O. B. Humston, R. C. Newkirk, O. P. Chapman, A. G. Elliston, C. H. Wilson, A. P. Dowden, M. Bell, E. E

Bickers and Owen Carroll. Visitors: Drs. C. Z. Aud, Guy Aud and Lillian H. South.

This being the regular meeting for the election of officers, same was first proceeded with and the following officers were elected for the year 1922: W. F. Asbury, President; R. C. Newkirk, Vice-President; Owen Carroll, Secretary and Treasurer; O. B. Humston, Flanklinton, delegate to State Medical Society, with W. F. Asbury as alternate; Webb Suter, O. P. Chapman and M. Bell were elected Censors.

On motion the following committee was appointed to draft resolutions on the death of Dr. T. J. Hower, former President of the Medical Society and Vice-President of the Henry County Board of Health: M. Bell, E. E. Bickers and Owen Carroll.

Guy Aud talked to the Society on "Plastic Surgery of the Nose." His remarks were highly appreciated by the members. Dr. C. Z. Aud talked for the general good of the county society. Dr. L. H. South explained fully the working of the State Laboratory and impressed upon the physicians present to make use of same, explaining the great assistance the country physician may have in diagnosis; in fact, giving them the same advantage that specialists have in the cities.

The meeting adjourned to meet the last Monday in May at 2 p. m.

Dues collected: C. R. Johnson, $5.00; W. F. Asbury, $5.00; Owen Carroll, $5.00.

OWEN CARROLL, Secretary.

Pendleton.—Pendleton County Medical Society met April 12th, at the City Hall in Falmouth, with a good attendance of the local members of the society present, and the following visitors: J. H. Skadlem, of Cincinnati, and J. E. Wells and Dr. McDowell, of Cynthiana. After a small banquet the following officers were elected for the coming year: President, F. L. Peddicord; Vice-President, O. W. Brown; Secretary-Treasurer, B. N. Comer.

J. H. Skadlem gave an interesting talk, and demonstrated with lantern and slides tubercular and non-tubercular conditions of the chest, and their relation to sinus infections with suggestive methods of diagnosis and early prognosis of the same.

Meeting adjourned to meet the second Wednesday in May.

B. N. COMER, Secretary.

THE FORUM

To the Editor:

The following letter I wrote to the Central Methodist. This is not the first correspondence I have had regarding their advertisement:

Central Methodist,
Louisville, Ky.

Dear Editor: I am returning the advertisement you sent me, and I want to say that such stuff is an insult to any intelligent physician, and should be to any intelligent Christian gentleman.

A religious paper that is teaching purity of life and then flaunt into the people's face advertisements that are untrue, that are designed to get Christian people's money for nothing, is beyond my comprehension.

You throw an insult into the face of every physician in Kentucky when you send out such advertising. You try to bolster up your case and appease your conscience by sending copy of advertisement carried in a paper that makes no pretension of teaching Christianity and that is in the business for the money it can make.

There are very few religious periodicals in this country that will carry such fraudulent advertising, and some of these have been denied mailing privileges.

I have lately examined a number of religious publications and find most of them have cut out all patent medicine advertising. The federal courts are trying some of these advertisers most every day, and fining them for fraudulently filching the people's money.

The great American Medical Association which you saw proper to take a "fling" at in your letter some time ago, made it possible for the enactment of national prohibition by their report that alcohol was not a medicine and that the profession did not need it in their practice.

Many lay publications have refused to advertise any patent medicines on the ground that such a large percent of them are fraudulent that it is not safe to advertise any of them.

Your excuse that you "need the money" to run a religious paper from such advertisements is too thin to hold water. A paper that is teaching purity of life and resorting to such means of support does not deserve to succeed.

T. Atchison Frazer.

KENTUCKY MEDICAL JOURNAL

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EDITORIAL

TYPHOID VACCINATION.

The facilities of the State Board of Health Laboratory at Louisville are being strained to supply all the typhoid vaccine which is being used by the physicians of Kentucky. Dr. South requests that the physicians will only order the quantity they actually need so that she can be sure that everybody is supplied. It is confidently expected that a half million people will be vaccinated against typhoid fever in Kentucky this year. The State Board of Health feels that this is one of the greatest contributions it has made to the protection of the public from this filth disease, which is at the same time constantly increasing the income of the medical profession.

It is of especial importance that physicians living in the towns which have no sewage systems, where the water supplied is constantly or intermittently polluted, advise their patients to be vaccinated against this disease. Typhoid fever has been constantly reduced in Kentucky for years but the reduction has been largely due to the increasing number of cities and towns that are realizing the necessity for a safe water supply and an effective sewage system.

It is important to remember that the typhoid vaccine is furnished free to the physicians of the state upon condition that it be administered without charge to the indigent and to school children who come to the office for its administration.

REDUCTION IN TUBERCULOSIS IN KENTUCKY.

The Bureau of Vital Statistics has compiled from the official U. S. Census reports the death rate from tuberculosis from 1880 down to date. This shows a reduction from 285.9 in 1880 to 129.2 in 1921, or a reduction of 56 per cent.

The State Board of Health was organized in 1880. Up until 1910 it will be noted from the table that the decrease was very slow. During this time our medical and health organizations were feeling their way with the new discovery of Koch and popular education in regard to the methods for prevention of this disease was extremely difficult.

In 1911 our State Laboratory was started. Previous to this, under the leadership of the late Mrs. Desha Breckenridge, of Lexington, and Mr. C. L. Adler, of Louisville, the State Tuberculosis Association had started a popular campaign against this disease. From 1910 to 1921 there has been a gratifying decrease, almost half, in deaths from this disease. A careful statistical study indicates that this decrease in the death rate from tuberculosis has added an average of five years to the life of every Kentuckian. If the work of the State Board of Health and the voluntary organizations allied with it had accomplished nothing but this it would have been well worth while.

It is of interest to know that the rate of decrease in deaths in Kentucky from tuberculosis has been about the same as in those states which have expended far larger sums of money in the location of a State Sanatorium where the indigents are treated free. There is no question but that these humane institutions should have been built everywhere and the money which has been expended upon them has added greatly to the comfort of the victims of the white plague. But the important consideration in the campaign against this disease is its protection and treatment in its early stages. We feel that the most important single element in our campaign at present is the constantly increasing physical education in public schools since the passage of the physical education law in 1920. Physicians are urged to emphasize the importance of this law to the school boards in the towns and counties of the state so they will see that their teachers are gradually trained in physical education.

The medical profession may well congratulate itself upon these figures which show one of the most important epochs in disease prevention in the history of the world:

DEATH RATES FROM TUBERCULOSIS (PER 100,000 POPULATION), FROM 1880 TO 1920.
STATE OF KENTUCKY.

Ten year average from 1880-1890	285.9
Five year average, 1890-1895	278.6
Five year average, 1895-1900	281.2
1900	267.4
1901	272.6
1902	270.5
1903	237.8
1904	266.0
1905	260.7
1906	251.5
1907	249.3
1908	244.9
1909	238.9
1910	241.0
1911	229.3
1912	208.7
1913	201.5
1914	201.8
1915	195.2
1916	178.5
1917	186.7
1918	193.5
1919	162.1
1920	150.4
1921	129.2

As noteworthy as has been progress in the past we must realize that Kentucky's death rate from tuberculosis is still among the highest in any state. This will continue just so long as our people are satisfied in half-trained teachers and miserably planned and built and ill-kept school houses. The school house, which one's child attends, should be a little better in its appearance and equipment than the home from which it comes. If this is not true in your community, you should help to arouse public opinion until it becomes true. There are still many counties in Kentucky which do not have regular medical inspection of their school children with correction of their medical and dental defects. There are many towns and counties in which many of the children do not drink milk at all and others in which the milk comes from cows which have not been tubercular tested.

The Kentucky Tuberculosis Association is planning to organize health and welfare leagues in every county in Kentucky during this year. In the organization of such leagues the medical profession must play a leading part if they are to be successful. Let's all work together for a reduction of our still too high death rate from tuberculosis.

THE ST. LOUIS SESSION.

Probably the most noteworthy progress made at the St. Louis session of the American Medical Association was in the report of the Reference Committee on Medical Education, which was presented by Dr. Joseph Rilus Eastman, of Indiana. This is of such importance that we are reproducing practically all of it.

"With regard to the question as to whether more medical schools are needed, your committee believe that all existing medical schools of high grade should be encouraged to enlarge their facilities so as to care for larger numbers of medical students, not merely by increasing the number and size of buildings and by adding to physical equipment, but also by the addition of teachers in sufficient numbers, so that instruction could be furnished to the student body in small groups and that high standards may be maintained.

Your committee approves the suggestion that some of the smaller medical schools situated in large centers of population, and which can be brought up to higher standards, should be given financial aid as well as the larger schools.

Your committee further believes that those schools with a larger population tributary to them, which have been obliged to limit their teaching to two preclinical years, should be enabled to establish the full four years of undergraduate instruction, wherever desirous to do so.

Your committee favors the establishment of new medical schools in a few states which are large enough to warrant it. Funds would be wisely expended in aiding such communities, if needed, to finance new medical schools.

It is further believed that the plan of some of the great foundations to require full-time clinical professorships is not wise and does not receive the support of the general profession. Your committee doubts the wisdom of making the adoption of such a plan a condition of endowment.

The tendency toward premature or over-rapid specialization is deplored. The practice of entering a special field without the proper preliminary general and special training should be checked. It is urged that medical schools so revise their curriculums as to provide a thorough training for the general practice of medicine, leaving courses in the specialties for the graduate medical school.

As a means to correct in part the faulty distribution of physicians, as between urban and rural districts, your committee subscribes to the plan of the Council for the establishment of hospitals in all communities having sufficient population in the surrounding territory to support them; these institutions are to be under the direct control of the medical profession. It, furthermore, regards the improvement of public highways as an additional aid in providing physicians for many districts which at present do not have them.

Your committee agrees with the views of the Council that the curriculums of medical schools should be reorganized so that the study of anatomy, pathology and the other fundamental sciences may be illustrative of clinical medicine and surgery, instead of treating those sciences as entirely separate from the latter. The committee believes, as does the Council, that the study of clinical cases should begin with the first year of medical training and be carried on concomitantly with the study of the fundamental sciences, so that each group will illustrate the other.

Your committee shares the view of the Council that there are certain obstacles in the development of a medical school as the medical department of a university. It has become clear that a medical school cannot be developed along the same comparatively narrow lines as the ordinary department of science in the university. Medicine has become one of the greatest functions of modern civilization, and has an intimate, every-day contact with every individual of the community, and the proper plan or organization must recognize this fact, and be sufficiently broad to maintain this relationship between the medical school, the medical profession and the community. The functions of medicine are performed by specially trained men and women—the medical profession. Any plan for the successful development of our medical schools must receive the active and enthusiastic co-operation of the medical profession. The medical school with its teachers and its associated agencies, hospitals, dispensaries, etc., cannot be developed simply as a university affair. It has definite and important functions to perform which are vital to the community, and a sound plan of organization must be one in which all of the agencies retain their normal place and perform their normal function. It is especially important that the teachers in the clinical departments retain their usual relationship to the medical profession."

SCIENTIFIC EDITORIAL

LEECHES.

Modern physicians are prone to neglect some of the time-honored therapeutic stunts of their fathers. In their enthusiasm for the diagnostic helps and laboratory technique they forget the homely but effective methods of treatment which have established their worth beyond question. It is seldom nowadays that we hear of leeches being used for therapeutic purposes, and yet leeches are our most effective means of treatment in some very trying conditions.

Those who do use leeches could multiply cases to illustrate their effectiveness in iritis, acute otitis media with threatened mastoid involvement, and in cases of frontal sinusitis where all other methods of treatment except operation have been tried in vain. It seems almost miraculous to see an iritis which has lasted several days and has resisted all therapeutic efforts clear up over night after a good leech has been applied close up to the external canthus.

The beneficial effects of the leech can be explained as follows: The normal blood carries nourishment and oxygen to the tissues. It carries away the waste products of metabolism. It also has certain definite bactericidal properties. The study of pathological sections of inflamed tissue shows us that the vessels are engorged with blood. This blood lies stagnant in the distended vessels and soon loses all of its healing qualities. The tissues cannot regain their normal condition till this stagnant blood moves on and fresh blood takes its place. Of all the means that have been used to accomplish this end the most efficacious by all odds is the application of leeches. This is especially true where the inflammation is intense and the surface is so small or uneven that cups and counterirritants cannot be applied.

Most physicians' supply houses keep leeches in stock and every hospital should have five or six on hand all the time. They may be kept indefinitely in a glass jar of water with a dozen layers of gauze tied over the top. When the leech is wanted the can is emptied into some loose gauze and he can easily be caught in a test tube which is filled with cotton to within an inch of the top. A wad of cotton is placed over the end and mister leech cannot escape. The tube is fitted tightly to the skin in the desired location and he will usually take hold very quickly. If he does not a sharp bistory may be pricked into the skin to draw a minute drop of blood. This is always too great a temptation for him.

R. H. Crowley.

ORIGINAL ARTICLES

SYMPOSIUM ON PEDIATRICS

COLITIS IN CHILDREN.*

By Philip F. Barbour, Louisville.

Colitis in children is esenially an inflammation of the mucosa of the colon, but unfortunately is not limited to the mucosa nor does it confine itself to the colon but usually involves also the ileum, sigmoid flexure and even other portions of the intestinal canal, directly or through the sympathetic system. The extent of the inflamed surface is not the most important factor. The intensity and virulence of the inflammation are probably dependent upon types of organism present and the resisting ability of the child.

The symptoms naturally vary with the location, extent, and intensity of the inflammation, but in general the characteristic features will be the presence of mucus in the stools mixed with more or less blood, and accompanied by toxemia and tenesmus. The major part of the inflammatory area will be found in the mucous membrane surrounding the solitary follicles in the descending colon and extending into the sigmoid flexure and the upper rectum. Prof. Hanes states that toxemia and tenesmus occur only where there is an involvement of the sigmoid flexure and the rectum and vary in severity with the intensity of the local infection.

The causative factor is the dysentery bacillus which may be of several types. The next most common organism, but even at that, rare in this section, is the gas bacillus. Then there are the complicating strepto and staphylococci.

The attacks usually begin with vomiting, sympathetic, and frequent large movements and a temperature approximately 103 degrees. The fever soon declines, and during the course of the illness will register about 100 degrees or less. After the initial clearing of the bowels, the stools rapidly change to the characteristic mucus stained or flecked with blood. The evacuations are small in quantity —sometimes a mere stain—but very frequent; may be forty to fifty in 24 hours. The straining may be distressing and almost persistent.

The only condition that is likely at all to be confounded with colitis is intussusception. There is marked straining rather rhythmically with intussusception. There is blood and some mucus in the stools but the distinguishing feature is a watery or serous area surrounding the central bloody or clotted spot. The history of the onset: the absence of fever, and the mass which is easily palpable in the course of the colon, are additional and useful helps to a proper diagnosis. The termination will be by sloughing of the gangrenous mass, or peritonitis.

The treatment of this serious disease embraces three outstanding features. The bacteria which cause the attack must be destroyed or minimized, the inflammation of the mucous membrane and contiguous tissues must be allayed, and certain by-products, so to speak, must be anticipated and combatted.

The character of the organism which produces the dysentery is difficult to determine even with the assistance of well manned laboratories. The prevailing type seems to be the dysentery organism, but there are several strains which do not at all show the same agglutination phenomena, so that the sera which have been tried have not been practically reliable.

There are, however, several general principles which control in the management of any bacterial infection and these may be applied in these cases where the variety and quantity of bacteria, pathogenic and nonpathogenic, make exact bacterial work nearly impossible.

Bacteria produce their deleterious results either by direct action upon the mucous membrane or by the toxins which they elaborate. There is no way by which the bacteria and their toxins can be so thoroughly removed from the intestinal canal as by purgation. And yet it is difficult for us to swing clear from the attitude and traditions of the older school of physicians whose first thought in cases of diarrhea was to give something, especially an opiate, to check the frequent movements. When we see a foul, ulcerated surface, we instinctively try to cleanse it; but when that ulcer is in the bowels and in contact with far fouler and more virulent material, we have too often quit our thinking and gone back to traditions. It is inadvisable, however, to use the harsher purgatives. In spite of the general approval, castor oil is not suitable, because it will bring mucus and often macroscopic blood and thus be an added irritant to the cells of the mucosa which already have a severe fight on hand. Calomel is bad. The writer has often seen a mild colitis flare up into a severe attack following the administration of calomel, and he has not used calomel in such cases for many years. Gray powder will be far less injurious if a mercurial must be given. The aromatic syrup of rhubarb with equal parts of milk of magnesia or chalk mixture, given every two hours is all that is necessary in most cases of colitis. The mucous membrane of the colon becomes so swollen that the lumen of the gut is practically obliterated. The fecal matter and toxic material are dammed back above the inflamed area, while below that point is an exaggerated peristalsis, and frequent passage of blood stained chunks and shreds of mucus. It is comparable to a severe rhinitis with much discharge from the anterior nares, and yet it is almost impossible to force air through the nasal passages. The mild purgatives suggested above should be continued until fecal matter passes freely when the symptoms will be found to have ameliorated, and the medicine should gradually be discontinued.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

Antiseptics have a slight and rather disappointing action upon intestinal bacteria. Those which are not also constipating, such as biniodide, or bichloride of mercury in small doses, sodium sulpho-carbolate, etc., may be used according to the personal equation. The acidophilic bacteria in conjunction with a carbohydrate diet will be of benefit in cases of infection by the bacillus dysenteria. If the gas bacillus is present, these would be contraindicated and the diet should be proteid. Milk, being a mixed food, should be stopped immediately upon the beginning of any kind of diarrhea. However, if the child has suffered from a prolonged and severe attack it may be necessary to cautiously give boiled skimmed milk, protein or buttermilk according to tolerance.

The natural defensee of the system should be promoted by keeping the child quiet, cool, free from visitors, flies, etc. The napkins should be boiled as soon as practicable, and careful cleansing of all hands that handle the foods or medicines tends to prevent re-infection.

The local treatment is most helpful when we realize that the lower two feet of the bowel is the maximum point of infection usually, we have an easy method of reaching the spot per rectum—as compared with the long and inefficient route per orem. Injections of bland materials are very soothing. The most soothing is oatmeal gruel, thoroughly boiled, and as thick as will run through the catheter. At least half a gallon and preferably more may be allowed to run into the bowel slowly and it should be repeated every two or three hours, according to the severity of the straining. A mild alkaline antiseptic may be added so that if a quantity of the enema is retained no harm will be done. Any cereal decoction may be used, or liquid petroleum. The child may rebel the first or second time the enema is given, but after that there ought to be no real resistance, if done properly. Allspice poultices applied over the whole abdomen, or some of the glycerinized pastes seem to give relief to the pain. It is advisable to prevent sudden chilling of the surface of the body, as the blood will naturally be drawn to the already congested viscera.

The by-products are the lesions of the nervous system, the disturbances of the inner metabolism and the chronic inflammatory changes in the gut. Flexner speaks of a toxin of the Flexner bacillus which caused convulsions in rabbits. All of us have encountered this symptom. There is no known antidote to this toxin, and our treatment can be only empirical.

The metabolic changes are principally concerned with acidosis. This term is much abused and covers a multitude of diagnostic difficulties, while the pathological chemistry is poorly understood. In the far South, the acidosis often becomes the predominant symptom and the chief cause of death. With us and farther North it is far less dangerous but we should, nevertheless, keep in mind and as far as possible meet it by the carbohydrate diet, and by the administration of alkalies—such as calcium or sodium.

The inflammation of the mucosa and the ulceration of the solitary follicles require much time for healing. The mucous membrane remains not only thickened but far less able to resist new infective processes. Therefore, the diet must be most carefully selected, and cautiously returned to the normal. Milk especially is a source of trouble and whole milk should only gradually be resumed.

The thickened mucosa favors constipation, but purgatives should be of the mildest type. Mucus will be present in the stools for some time, but is not significant unless the quantity remains large, in which case a weak argyrol solution may be injected daily until recovery.

Before concluding a word must be said about prophylaxis. Colitis may occur at any period of the year, but it is far more frequent in the hot months. Especial care of the diet should be maintained in the summer months. Milk must be the best and the cleanest possible and pasteurized during spells of high temperature. At the beginning of any gastric intestinal disturbance, it must be stopped completely. Fermentable fruits, or those partially rotten, excessive amounts of sweets and coarse vegetables should be interdicted in the warm months. Eternal vigilance is the price of safety.

RECTAL AFFECTIONS OBSERVED IN CHILDREN.*

By Granville S. Hanes, Louisville.

In discussing the various diseases affecting the terminal portion of the large bowel in children it will be possible to refer only to the most salient features of each affection.

Cancer in the lower extremity of the large bowel in children is exceedingly rare. We should be aware, however, of its possible occurrence in very young children. A few cases have been reported under twelve years of age. I saw one case in a boy under fifteen and another under nineteen years. All malignant growths here located in children are rapidly fatal.

Tuberculosis of the rectum in children is exceedingly rare and when any portion of the alimentary tract is invaded by this affection it is always rapid in its progress.

Rectal prolapse in children is by no means infrequent in its occurrence. Just why there is this tendency in children has given rise to some interesting speculations.

One of the reasons given for the prevalence of prolapse amongst children is the absence of the sacral curve as found in adults. The lower bowel is thus deprived of its support as it passes downward and forward in the deep hollow of the sacrum in adults. In children this portion of the bowel occupies a position in a more or less direct line with the trunk. Under such circumstances straining would undoubtedly have a greater tendency to force the walls of the rectum through the fixed part of the anal opening.

Lenormant thinks the musculature of the pelvic diaphragm is the chief protection against prolapse. I have no doubt but this does play an important part in these cases who have become relaxed from exhaustive disease.

The principal exciting causes of prolapsus recti in children are stone in the bladder, phimosis, diarrhoea, polyposis, whooping cough, various debilitating diseases as in rickets, remaining on stool after defecation is completed, or any condition that would produce long-continued or expulsive efforts.

Treatment would naturally require attention to the removal of the cause. This being done the patient is often relieved at once. If the child is seen when the prolapse is present it should be inverted over the edge of a bed or table with the head supported on the mother's lap. The tumor should be gently manipulated, pressing it back into the rectum, after it has been well anointed with vaseline. If there is difficulty in reduction, warm compresses of absorbent cotton should be kept up for thirty or forty minutes. Gentle but uniform pressure should be made on the prolapse, while the compresses are applied. It is very important that the patient be kept in a complete state of relaxation. If the child is crying or the abdominal walls are tense the reduction will be attended with great difficulty, while if there is complete relaxation it will ordinarily be surprisingly easy.

If not successful in obtaining relaxation and the prolapse remains unyielding it will be advisable to administer sufficient chloroform to produce relaxation, maintaining at the same time the same posture, and continuing the manipulation. At this time especially should the manipulations be very gentle. The apex of the tumor should not be forced into the rectum first, but, on the contrary, the whole mass should be pressed upon and gently forced into position.

Reduction having been effected it will often be necessary to apply some retention apparatus. This in most cases can be best done by placing a small piece of cotton firmly against the anus and then strap the nates firmly in apposition with adhesive strips.

The bowels must be regulated. The actions should not be hard nor should they be very thin. When the bowels act the patient should lie on the back with the knees flexed. A small amount of warm water should be allowed to slowly flow into the rectum and when this is returned more may be injected if the action is not complete.

When defecation is completed the parts should be well cleansed, dried and strapped firmly. The original straps should be cut close to each buttock and allow the adhering parts to remain. The new straps can be placed over those first applied and thus obviate the frequent removal of those adhering to the skin.

It is well to have the bowels act just before bedtime as the patient will remain in the recumbent posture after defecation.

Patients treated as herein indicated may not be relieved promptly, but if the treatment is faithfully persisted in all patients will be permanently relieved unless there is some serious complication.

In children who have prolapsus recti there should be no surgical interference until other methods of treatment have been proven ineffective.

Rectal polypi occur quite frequently in children. They are rarely multiple, usually pedunculated, and are in most instances within easy reach of the examining finger. They vary in size, the average being about that of a hazel nut.

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The chief symptom of rectal polyp is straining with the passage of blood and mucus. If the tumor has a short pedicle and is situated some distance above the anal opening the symptoms will not be pronounced, but when the tumor is in the vicinity of the anal opening then the symptoms become most acute. The rectal mucosa may become very much irritated and even ulcerated if the polyp remains down about the anorectal junction.

The diagnosis is usually easy though there are instances where the tumor is very difficult to detect. When the child has been straining and blood and mucus are in the discharges, the diagnosis of a polyp can be easily made by inverting the patient and using a short proctoscope. As I have previously stated, no examination of any value can be made of the rectal mucosa until the abdominal muscles are relaxed and the viscera gravitate toward the diaphragm.

The walls of the rectum must be well distended beyond the distal end of the proctoscope. This cannot be done if the child is straining and forcing the walls of the bowel into the end of the examining instrument. When relaxation is complete no polyp, catarrh, ulceration or any other condition affecting the rectal walls can escape observation. When the little patient is dealt with kindly it is surprising with what success these examinations may be made.

If the attachment of the pedicle is low the tumor may be brought out through the anal opening and sufficient traction made to ligate near its attachment to the rectal wall without difficulty.

When the polyp is situated higher up a proctoscope may be employed as previously described. The tumor should be seized with a small alligator forceps and the pedicle pulled at right angles to the lumen of the bowel and one end of a ligature dropped beyond the pedicle and brought back by another alligator forceps. A knot is placed around the pedicle by carrying the distal end of the ligature down with the forceps. Ample tension may be made to cut off the circulation in the pedicle. The pedicle should not be divided, but the tumor should be allowed to slough away.

If the patient is nervous and will not remain quiet an anesthetic may be given.

Constipation occurs very frequently in children and there is one prevailing cause. A large number of children in early life, or later, develop digestive disturbances. There is sufficient fermentation and putrefaction of food that bacterial life becomes exceedingly active in the large bowel. The same is true in typhoid, diarrhoea, dysentery, etc. In the majority of cases virile bacteria penetrate the deeper portions of the walls of the large bowel and also into the rectal structures, the anal tissues and their immediate surrounding structures. They penetrate deeper into the walls of the bowel higher up, as conditions favor their development, and cause adhesions of peritoneal surfaces, so-called Jackson veils, colitis, etc. In the terminal portion of the bowel they penetrate the deeper tissues and affect the mechanism which controls the outflow of waste and poisons which accumulate in the intestinal tract.

The sphincter and muscles, including the levator ani, which is the most important muscle situated at the rectal outlet, and the highly sensitive nerves with which they are abundantly supplied all become chronically diseased. This establishes what might be called a "vicious circle." When the sphincter muscles contract upon the diseased nerves within their grasp an exaggerated sensory impulse passes to the reflex center in the cord and a corresponding abnormal motor impulse returns to the muscles. The consequence is that these muscles remain in a state of spastic contraction which in turn causes the muscles to become greatly hypertrophied.

When this condition has developed a normal stool, the first of which is formed, cannot be forced through the unyielding group of sphincter muscles. The necessity then arises for softening the stool so that it may accommodate itself to the narrow opening through which it must be delivered. The patient has what is termed constipation. Consider for a moment the remedies, old and new, that have been proposed when, if the obstruction, at the end of the intestinal tract were removed the patient's relief would be complete.

In all patients who have hypertrophied anal muscles the condition can be recognized at once by digital examination. We have failed heretofore to attach the proper importance to such conditions, even though it may have been almost impossible to force the finger into the rectum as a consequence of the irritability and contraction of these hypertrophied muscles.

We have repeatedly heard adults say that they have been constipated since childhood. I feel very certain that a large percentage of such cases are victims of early infections such as we have described. They often say that the lower bowel is paralyzed and they cannot strain, when investigation will show they have highly sensitive muscles greatly hypertrophied.

Constipation is only one of the many conditions that arise from the infections and consequent diseased state of the tissues at the terminal portion of the intestinal canal. In children and adults bleeding, especially at the time of defecation, may occur as the result of granulations in the anal tissues.

Anal fissures which occur only in diseased tissues are the result also of this pathology.

Abscesses and fistulae which do not occur frequently in children have their origin, as a rule, in these same chronically diseased structures.

I have been interested for the past four or five years in ascertaining the cause of enuresis in children, especially in those who have reached the age of ten years and upward. These patients to whom I refer have abnormally frequent urination in daytime and incontinence at night. No evidence of disease is found in the urinary apparatus, yet this inability to control the elimination of urine in a normal way continues to persist. I have found that the anterior anal and rectal walls which lie in apposition to the posterior walls of the urinary apparatus are either ulcerated or in a state of chronic infection. If the surfaces are well cleansed and close inspection made it will be seen that the tissues are diseased when a casual examination would show no evidence of a pathologic state. Often, when cotton or gauze is gently rubbed over the surface they will be stained with blood. The infections are of long standing and penetrate into the deep structures, even affecting the muscular coat of the bladder wall. If this is true it may be easily seen how a slight distention of the bladder with urine would cause uncontrollable contraction of the bladder wall and involuntary urination. As children usually sleep very soundly involuntary urination could very naturally occur in this way.

I have a boy under observation who is fifteen and a half years of age. He has passed urine in the bed involuntarily from two to five times at night since earily childhood. He would often void when taking a nap in the afternoon. Examination showed all the rectal and anal mucosa diseased. In the anterior rectal surface the mucosa was red, granular and bleeding when firmly rubbed. Repeated examinations showed the urine to be absolutely free from any abnormal products. He has had local treatment to the rectal tissues for a year and almost a half. He has not had involuntary urination for more than a month and within a short time we expect him to be completely relieved. The rectal and anal tissues appear to be practically normal. He will keep up treatments persistently for three or four months after all symptoms have entirely ceased to exist and will be advised to take two or three treatments every ten days for an additional period of a few months. The time required to obtain complete relief from deep infections in rectal and anal tissues extends over periods of months and years. Treatments in such cases are usually left off as soon as relief is experienced. Recurrences are certain sooner or later. In treating chronic infections of the nature above referred to patients should be made to thoroughly understand that six to eight months may elapse before any relief is experienced, and then the progress of improvement will be very slow. If such patients are not frequently encouraged and reassured of their certain relief they lose faith and discontinue treatments long before the slightest intimations of a cure have been experienced.

When children have difficulty in controlling the urine and the usual causes for such complaints have been eliminated it would be a wise procedure to thoroughly investigate the physical state of the rectal and anal structures adjacent to the bladder and urethra.

While pruritus ani is not a frequent complaint among children, the seeds for its later development are often sown in early life. Infections of rectal and anal tissues from intestinal disturbances in childhood often remain more or less dormant and in later life become the real cause of itching, tight muscles, fissures, etc.

We frequently meet with amebic dysentery in adults in this climate, but very rarely does it occur in children. I have seen two cases under four years of age. The diagnosis is easily made. The straining at stools with blood and mucus and the presence of the ameba establishes the character of the affection. In these patients characteristic ulcers can be seen in the rectum by use of the proctoscope.

In acute intussusception, frequently met with in children, bloody stools is a prominent symptom. The doctor should keep this condition in mind in such cases as those who have straining, bloody stools, etc.

I have not mentioned hemorrhoids, as they are unimportant in children. It is not infrequent that a few veins become dilated at the external anal margin, causing a livid appearance of the parts when the patient strains. This is of itself unimportant and is usually secondary to the contraction of irritable and hypertrophied muscles which have resulted in a state of constipation and straining.

Skin tabs or tumors at the anal margin are called external piles. They bear no structural relations to hemorrhoidal tissues, but are so termed because they exist near the anatomical parts where piles are formed. These skin tumors are important because they, in almost every instance, indicate a pathology in the anal tissues directly above. If careful examniation is made this diseased area can be easily detected. The removal of the skin tumor does not give relief except to get rid of the mechanical disturbance and the pain if the tumor is sensitive. So far as the original condition is concerned it remains unaffected.

In closing I wish to call attention to the universal employment of soapsuds enemata in children and adults when there is a tendency to constipation. The evil results following the use of soapsuds is not appreciated. No bowel should be subjected to frequent soapsuds enemata for the relief of constipation. They are irritating to the tissues and cause contraction of the anal muscles which aggravate the constipation.

Again, I want to emphasize the importance of recognizing chronic infections in the rectal and anal tissues which are responsible for so many symptoms the source of which have been more or less confusing.

THE VALUE OF EXAMINATION OF SCHOOL CHILDREN.*

By Annie S. Veech, Louisville.

The public print and in fact the public mind is full of the word economy. We realize how wasteful we had been during the war, wasteful of life, wasteful of material things. The war taught us that we had not learned the economy of keeping well. A certain portion of our time we are inefficient and unfit for our best service. One out of every three young men was found to be physically unfit for service for his country. Then people began to realize the folly of never trying to correct this lack of economy and inefficiency until our lads are at least 21 years of age. If those boys were physically unfit for soldiers, they must, in some degree, be unfit for citizens, physically handicapped, so they were unable to do their best work in the world.

We have for the past ten years had physical examination of children in schools. It was never appreciated by the parents and somewhat resented by the teachers as interfering with the daily routine of schools. With this attitude of the parents and teachers, we could hope for little cooperation from the children.' Results other than those of 1917 could not have been expected.

Today the attitude toward physical examination of children in the schools has changed. Unfortunately with the small number of physicians to do the work and the inadequate facilities, even in the city schools, we must continue to make a limited examination. We believe that each child in our state is entitled to a physical examination, has a right to and does expect it. The fact that the draft called out of every community many young men, each of whom had to submit to a physical examination, changed the view point about its being nobody's business but our own as to our children's physical condition.

The science department in the public schools of Louisville has taken up very seriously and happily the subject of the health of children in the schools. I say seriously, because they have come to realize physiology and hygiene as it has been taught in the schools has been a failure in producing physically fit citizens, and I say happily, because we are teaching children the joy of health attained through health habits, the care of the mouth and teeth, the removal of diseased tonsils, the overcoming of malnutrition by proper diet and rest.

In our limited physical examination in the schools, the trained eye notes the general appearance of the child as to skin, posture and carriage. The mouth, teeth and throat are examined, vision and hearing tested. The head is examined for pediculosis, the arm for vaccination. Normal nutrition is calculated by weighing the child once a month. This is as far as the examination can go at present in the schools, because the examination must be made in the school room of boys and girls of various ages.

The child is taught that this is a superficial examination and is advised to go at once to a physician or dentist for further examination and treatment. He is also taught why we must make this superficial examination and he knows that the physician who pretends to examine the heart and lungs through clothing is an ignoramous. To get good results, the physician must be on the most cooperative terms with the teacher and the nurse, for these are his valient helpers, on whom he is bound to reply. He must believe in the dignity of his work. He must visualize for the teacher a group of pupils easy to teach and control, because they are vigorous. It is the contrary, dull child who tries the teacher. He it is, who is the repeater in the grades and therefore an extra expense to his community. It is possible that his retardation is due to neglected physical defects. The physically improved child, who has gained a health consciousness through health habits, carries this message to his home people. He demands milk instead if tea and coffee; green vegetables containing vitamines which have to do with his nutrition. He knows that the healthy body must have sufficient hours of rest in pure air. It must have exercise for tone and must be kept clean. He knows that the properly rested, properly nourished healthy body does not take infectious diseases. That it is not necessary to have the infectious diseases of childhood, and the teacher knows that if she is to point out the way to health to these little people, who are our future citizens, she must live health habits herself.

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In our school examinations, just as in the army examinations, we find the most frequent defects are decayed and diseased tonsils. These corrected, the child goes on to continue improvement in his health attainment.

I feel very strongly that the physical examination of school children is an utter failure and a useless expense to the community, unless the examiner has a vision of the future peopled with physically fit citizens, who are themselves crusaders bearing aloft a health standard, through correction of physical defects and carrying out daily habits. Children love the beautiful. They like to have vigorous bodies. They quickly catch the vision of service and better citizenship through healthy bodies. It is most interesting to listen to their discussions on weighing day as to the reasons for gaining and not gaining, and how seriously they take it. Failure to attain we find mostly due to diseased tonsils, lack of sufficient rest, and improper feeding.

We feel that monthly weighing is the biggest help in bringing the child up to normal and keeping him there. Therefore, "Scales in every school," should be a slogan proclaimed by those interested in child welfare, and a plea for more and more physicians to make these examinations, who have a clearer understanding of child psychology and a higher sense of civic responsibility.

One great help in child welfare work is the general practitioner, who, in his visits from home to home, educates his people along these newer progressive lines of health, he is the one whom the children love and whose opinion to them is the last word.

DISCUSSION:

R. J. Estill, Lexington: I am going to confine what I have to say to Dr. Barbour's paper on colitis, which is always an interesting subject to those of us who are working with children. We know that colitis is one of the most dangerous diseases of childhood. If it is not fatal immediately, it so undermines the resistance of the child that the little patient drags along for weeks and months in a much undernourished condition and falls an easy prey to intercurrent diseases that come along. Theoretically, it is not always possible to say that you have a simple colitis. We know that a tremendous and persistent nausea with diarrhea means usually an inflammation of the upper part of the intestinal tract. Where the nausea is absent, and there are persistent and frequent small movements with mucus and blood we believe a simple colitis is present. There are all gradations between these two extremes, and it is not always easy to say which we have. There is no place in medicine where prophylaxis is more important than in this condition. I believe every doctor, whether a specialist or general practitioner, can do good and wonderful missionary work by instructing young mothers about the care of the diet and hygiene and routine of children and prevention is certainly preferable to cure.

I believe absolutely with the essayist that calomel is dangerous in these conditions. I cannot go quite as far as the essayist does with castor oil. I believe we have an overloaded condition of the intestinal tract, with toxemia resulting, and I believe castor oil given early is proper and necessary. I believe that the too frequent administration of castor oil can keep up the condition, but from time to time, perhaps once in four or five days, depending on the amount of toxemia present castor oil can be repeated. We formerly and at present use the bacillus bulagricus. This has been disappointing in many cases because implantation of the bacillus bulgaricus cannot be carried farther down into the intestinal tract than the ileocecal valve.

A great deal of interesting work is being done at the present time at New Haven with the bacillus acidophilus, and this can be implanted in the entire intestinal tract, and it has proven to be a valuable asset in the treatment of these conditions.

One point of importance not mentioned in the beginning of this subject is that tremendous watery stools exist to such an extent that the prostration of the patient is profound, and the patients do not early recover from this prostration. It is an actual condition of dehydration; there is practically no fluid left in the body, and this should be supplied with normal salt introduced subcutaneously, or as is being used in the east at the present time the intraperitoneal injection of a small amount of normal salt, or 6 per cent glucose solution. I have used this and have gotten results from it.

The diet is all important. The essayist has covered that phase of the subject, so I shall not take up any time in discussing it.

Tenesmus is a persistent and troublesome part of this disease. I have never used oatmeal gruel as an irrigation. I have, however, used old-fashioned starch paste without opium. The starch paste relieves materially the tenesmus which is so disagreeable and so persistent in these cases.

The period of convalescence is very important. These children are tremendously prostrated by this condition. We know that their convalscence is long; they are under par and hence are a prey to anything that comes along, and so their convalescence must be carefully and thoroughly guarded. Oftentimes reconstructive measures, a careful diet, and a change to a cooler climate than we have in Kentucky or Michigan, are necessary and should be carried out.

J. Rowan Morrison, Louisville: This is a remarkable symposium, and I am sorry we have not had more discussion than at present. In the first place, I want to say that the paper of Dr. Veech is most timely, and more attention should be paid to those things in general to which she has called our attention. I thoroughly agree what we need is to remove disease in children, such as adenoids, diseased tonsils, the performance of circumcision, and then to consider nutrition. We should get some food into them and keep them well nourished. After that comes rest. You cannot cure tuberculosis with food alone; you must have food and rest.

As regards Dr. Barbour's paper, he has taken a little different viewpoint from most of us, with excellent results. With regard to purgatives, if I give purgatives, I should give castor oil. I cannot see the difference between giving it and the aromatic syrup of rhubarb, which I think is more irritating than castor oil. In the children's hospital we give soda enamas to clean out the bowels. An alkali enema will clean out the bowels. I give protein milk to these children, believing that it will accomplish more than a carbohydrate diet. We usually put these children on that substance when they come in, and if you put sacchrin with it, they take it very well and it acts on the bowel very satisfactorily. They soon clear up unless complicated. After that we substitute buttermilk and bring the child back to natural food. Dr. Estill mentioned dehydration in these cases, and in this condition we must use some sort of water and get it into the child. Oftentimes this can be done by proctoclysis, and if these patients are very ill we can introduce it intraperitoneally. It is easy to do and it does great good. In fact, it saves the lives of many of these children.

As regards the use of bismuth and medicines, I do not know that they will do any good at all. They may.

Dr. Hanes read an interesting paper, but there is one thing he did not mention, and that is fissure-in-ano. He treated a number of these children when I was in charge of a station at the babies milk fund, and he has had good results. That should not be overlooked when treating constipation in children. If you give them all sorts of food you will not get results. If you will spread the buttocks apart you will see a crack. Not infrequently these children complain when they defecate, and if you can get Dr. Hanes or some other man to operate and close this fissure you will stop the child's trouble.

James W. Bruce, Louisville: I should like to encroach on the time of the Association for a few minutes more to discuss these very interesting papers. First, with regard to colitis. I think when we consider the subject of colitis we want to have clearly in mind the underlying pathology, just what we are dealing with. We have to remember that colitis is getting to be a comparatively rare condition; we do not see as much of it now as we used to since we have good certified milk, etc., and since people are boiling the food they give to infants we do not see so much colitis as we formerly did.

Colitis is essentially an inflammation of the mucous membrane of the colon and ileum, and in the vast majority of cases it is caused by the dysentery bacillus; in other words, it is the same disease which decimated troops in the Crimean War, and is the cause of so much trouble in Russia today. It is an inflammation with ulceration of the mucous membrane of the colon. A condition with which it is so frequently confused is ordinary fermentation diarrhea. The child is unable to properly digest and assimilate his food, and instead of the food being digested it undergoes fermentation with the production of irritating acids. That stimulates the gut to increased peristalsis. They bring out the mucus, and not blood or pus. You have in one case infection of the intestinal wall, with a throwing off of pus or blood, whereas in the other case you have infection of the food mass, with the production of irritating acids which irritates the intestinal wall but do not cause ulceration. They cause stimulation of peristalsis and the patient has mucus and watery stools. Having in mind the essential difference between the two the treatment is different. In a case of fermentation diarrhea we should try to get the intestinal tract cleared out by the initial purgation. Some people like castor oil, while others like rhubarb, and still others like calomel. I use a small dose of castor oil. The latter is the remedy par excellence for fermentation diarrhea. It is so constructed as to fit that condition. It contains two and a half per cent fat, and one and a half per cent sugar, and three per cent protein. Protein is in the ascendency. The carbohydrate is lowered, therefore the putrefactive process takes care of the fermentation process and clears up the stools. It is remarkable how quickly protein milk will clear up the stools in fermentation diarrhea.

After the initial purgative it is most important to starve the baby for 24-48 hours. During the starvation period, give plenty of water. Then begin on a weak milk mixture or better still on protein milk.

James Henry Pritchett, Louisville: I desire to refer to the use of saline intraperitoneally. We now save the lives of many children suffering from intestinal toxemias who otherwise would have died; by using salines intraperitoneally. It is a simple procedure. The only danger, I may say, are these: Be sure the bladder is empty. In a small child the bladder may be much distended and in that case you may puncture the bladder. In the second place, if we are at all careless in the manner of introducing the needle we may puncture the intestine. That is rare but it has been done. We use normal salt solution, sodium bicarbonate is good, but it cannot be sterilized easily because it forms the carbonate of soda which is a distinct irritant to the tissues. We use 75 to 250 c. c. which is rapidly absorbed, not only by the lymphatics, but by the blood stream directly. First, it increases the alkali retention which is lowered; second, it tends to dilute the toxins in the bowel; third, it tends to reduce the temperature when very high. These three things together with the fact that the procdure is practically without much danger certainly justify its use.

I read an article sometime ago in which the author advocated at the 1919 meeting of the Section on Pediatrics of the Southern Medical Association the use of one-half to one per cent silver nitrate irrigation every eight hours in cases of ileocolitis. I have not had the courage to try this out. I have used on three or four occasions argyrol, varying from 25 to 50 per cent strength, with fine results. I would like to know what Dr. Barbour's opinion is in regard to the use of so strong a solution in the rectum as silver nitrate.

Philip Barbour, Louisville, (closing on his part): There are diarrheas and diarrheas. The type that Dr. Estill spoke about in which there is dehydration of the tissues is not a real colitis. In the fermentation diarrheas there is always an enormous loss of water, and these cases need water. You may give them water intraperitoneally or by proctoclysis, or whateved way you can get the water into them, but the majority of cases of pure colitis will not pass from the bowel half a pint of fluid in twenty-four hours. We do not find in pure cases of colitis that they suffer from real dehydration. It is important to get water into the child. Natural thirst calls for a certain amount of fluid, and this must be supplied in the milk, if you give milk, soups and broths. In the pure types of dehydration from fermentation diarrheas, protein milk serves a good purpose where you want to counteract the acid character of the irritant substance in the bowel. Protein milk furnishes an alkaline medium and starves out the bacteria and adjusts the character of the flora of the bowel and helps them.

About castor oil, I believe if you will examine the stools of any child who has taken a large amount of castor oil, you will find blood. I have seen blood in the stools of children after the use of castor oil, and I think if you give castor oil, it ought to be given in minute doses. I prefer the use of the milder types of purgatives rather than the oil. If you give a big dose of castor oil the trouble lights up again. In the milder types of cases I give rhubarb in half teaspoonful doses, and have never seen blood in the stools following it, and the patients get great comfort from it. The gentler and more agreeable remedies we give these patients, the better the results are going to be. But we should get away from the idea of the value of locking up the bowels.

I want to speak of one point in connection with Dr. Hanes' paper, the importance of looking after fissures of the anus in children. Dr. Morrison called attention to that. It is a far more common disease of the rectum than any other one condition mentioned by the essayist. I see it as a cause of constipation in young children that come to me. It is hardly necessary to do a dilatation in these cases. A simple oil enema will cure them with the giving of medicines which will keep the stools soft.

In regard to Dr. Veech's paper, one of the important things in connection with the building up of strong manhood and womanhood is to lighten the burden of the school itself upon the growing child. The sooner we build up a strong system and strong constitution, the better it will be for the future citizens.

I enjoyed Dr. Marks' paper on bronchial asthma. I think the new work on protein sensitization opens up a new field in the treatment of asthma. Desensitization is not a permanent thing. You can sensitize a patient to protein, but to get that patient permanently desensitized is difficult.

The pollen treatment of asthma is very well for that summer, but unless you continue it year after year you will not get permanent relief of hay fever by one pollen treatment. Treatment must be repeated a number of times before you get complete desensitization, but it is doubtful that it will be persistent.

Granville S. Hanes, Louisville (closing): I am glad Drs. Morrison and Barbour mentioned the frequent occurrence of anal fissures in children. Their observations are entirely correct and I failed to mention this condition only for the want of time.

It should be borne in mind that anal fissures, as they are ordinarily seen, do not occur in healthy structures. They are lesions in tissues which are weakened and made friable from diseases. And again it should be recognized that very painful conditions occur in the anal outlet when no lesion in the form of an ulcer or fissure is present. We not infrequently find the anal muscles in a state of spastic contraction, due to a deeeply seated granular condition in the upper portion of the anal canal. The junction of the hind gut and the proctodaeum, in fetal life, is just above mid-distance between the internal and external anal openings. Above the line representing this junction is mucous membrane and it is in the grasp of the powerful levator muscle. This mucous membrane is abundantly supplied with highly sensitive nerves and when invaded by certain pathogenic bacteria the tight contraction of the levator muscle on the diseased tissues within its grasp gives rise to most excruciating pain.

The superficial tissues above the ano-rectal junction, as I have said, is mucous membrane and that immediately below is altered cutaneous tissue. It is a zone which is neither mucous membrane nor skin, but is always found intervening and thus avoiding a direct junction of mucous membrance and skin. It is in the tissue which is below the ano-rectal line in which anal fissures are found.

It rarely occurs that the type of infection giving rise to fissures or granular conditions causes but little irritability, contraction and pain, but the type of infection is usually of such a character as to cause a great deal of local irritation, therefore spastic contraction of the anal muscles with the production of excruciating pain.

When the finger or an instrument is introduced through the anal canal and there is unusual sphincteric resistance and pain there is always disease in the anal tissues. Do not say there is no disease if fissures, ulcers or granulations are not detected. Tightly contracted muscles, sphincteric resistance and pain on the introduction of the finger through the anal canal settle the question absolutely. From this diseased state the tissues may or may not become granular or separate into a fissure.

These structures become diseased as a consequence of active bacterial growth in the large bowel as in diarrhoea, typhoid fever, fermenting and purifying food, etc. It is my opinion that many children carry these infections into adult life. They have constipation, indigestion, gas, sensitive and contracted anal muscles, etc., of which they complain until and after they reach mature life.

I seriously doubt that the mucosa of the large bowel, the rectum and the anal structures ever entirely recover when once they are completely invaded by pathogenic bacteria.

ACUTE VINCENT'S ANGINA YIELDING ONLY TO TREATMENT WITH SALVARSAN: CASE REPORTS.*

By Stuart Graves, Louisville.

While treatment of stubborn cases of Vincent's angina with salvarsan is not new, two unusual cases of this kind which have come under my observation seem worth calling to your attention to emphasize the efficacy of this treatment when other methods are ineffective or contraindicated for some reason. Probably others present have seen this method used much more than I. The drug has been used both locally and intravenously with excellent results.

Case I. A physician brought the patient to the laboratory some time ago for a Wassermann because the young man had severe ulcers involving the pharynx and uvula. The soft palate was practically destroyed. The Wassermann was flat negative. The physician was greatly surprised because he thought it was a clear case of syphilis. I asked him to send the patient back to the laboratory. Smears were made from the ulcerated surface and typical Vincent's organisms were found in abundance.

In treating this patient the physician had used practically every remedy recommended for Vincent's angina without any apparent benefit. About that time I happened to have read Barker's article in the *Journal of the American Medical Association* and suggested that salvarsan be tried. The patient was referred to Dr. Wm. J. Young. After one dose the patient was much improved. After the second dose the lesions were nearly healed. A third dose was given to make sure of the cure.

Case II. The second patient came under my personal observation as she happened to be the cook in my own family. After being considerably debilitated as the result of a severe attack of grippe she developed a fulminating case of Vincent's angina. Her tongue and gums were badly swollen and covered with foul ulcers. She could not open her mouth and could not eat any solids for five days. The pain was extreme and it was impossible to apply any local treatment. She was given one dose of three decigrams of neoarsphenamin on Wednesday and on Friday she could open her mouth and was feeling considerably better. She was given another dose of three decigrams on Friday and Sunday she was able to eat and the ulcers had practically disappeared. On Monday she was given four and a half decigrams and by Wednesday the ulcers were entirely healed. She received no local treatment whatever except a chlorate solution and peroxide as a wash before and after the acute stage.

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*Clinical Report before the Louisville Medico-Chirurgical Society.

There has been no recurrence in either of these cases and the patients have remained well.

DISCUSSION:

Wm. J. Young: I suppose on the average we see one or two cases of Vincent's angina in our clinic at the Louisville City Hospital every week. During the last three years we have treated at least seventy-five such cases. Two types of the disease have been observed. In the first the ulcers are superficial in character with little tendency to tissue destruction. In the second type the lesions are distinctly destructive in character, the ulcers are deep and may practically destroy the tonsil, uvula, the anterior and posterior pillars of the fauces are frequently involved, and clinically it is absolutely impossible in many cases to differentiate the lesions from tertiary lues. Consequently when we see a patient with such lesions and a negative Wassermann we immediately make smears and examine them for the Vincent organisms. We have encountered many of these cases during the last two or three years, particularly since the war. Arsphenamin acts exactly like it does in a syphilitic throat when administered in these cases of Vincent's angina. The patient may be in constant pain from the deep, excavating ulcerations, and after one dose of arsphenamin almost complete relief is obtained. We usually administer two or three doses to be certain of the proper effect. As a rule we do nothing else in these cases except to order a solution of peroxide of hydrogen for a gargle. This is merely used for its cleansing effect. I have seen one recurrence which yielded to arsphenamin the same as the original attack.

L. K. Baldauf: About a year ago I saw a patient similar to the one mentioned by Dr. Graves. A young man was supposed to have secondary syphilis but this proved to be a typical Vincent's angina. This man had a yellowish membrane over the gums, tonsils and pharynx. After one injection of .3 gm. neoarsphenamin disappearance of the lesions was noted.

I have had the opportunity of seeing quite a number of patients with Vincent's angina. Dr. Heyman has probably seen more of it than anyone else in this part of the country. First, the acute of fulminating type where the mucous membranes of the throat, gums and tonsils are involved, the ulcers being deep and destructive, second: the more chronic type where the disease is limited to one or two teeth the ulcerations being more superficial. In the fulminating type of the disease, I believe the consensus of opinion is that arsphenamin is the proper drug to use but in the chronic or more superficial type some local astringent like mercurochrome, chromic acid, etc., ought to be used. A few words might be said about the diagnosis of Vincent's angina. There is scarcely any mouth in which Vincent's organisms will not be found if careful examinations are made. Simply because fusiform bacilli and spirochaetes are found in the mouth, does not mean that the individual has Vincent's angina. At the same time there is no question that Vincent's organisms are the cause of the disease. Probably the most interesting work on Vincent's angina from a pathological standpoint has been done by Ruth Tunnicliff of Chicago, Ill. She made sections of gum tissues and found that the organisms were arranged in definite layers, the fusiform bacilli being deeply embedded in the tissues and the spirochaetes being in the outer layers, demonstrating that the fusiform bacillus is distinctly an anaerobic organism. Heyman has made use of this idea in a rather interesting method of treatment. Good results are reported. Assuming that these two organisms are not different phases in the life history of one organism as claimed by Tunnicliff; that these are symbiotic organisms one growing because of the presence of the other, he makes anaerobic cultures and prepares a vaccine. The vaccine contains dead fusiform bacilli. By immunizing against one organism, the two being symbiotic, naturally the spirochaetes disappear.

I. A. Lederman: With reference to the local treatment of Vincent's angina as we see it in the tonsils, pharynx, etc., there have been any number of local remedies suggested among them glycerinated arsphenamin. Nearly everything has been used from nitrate of silver, trichloracetic acid, chromic acid, etc. I think the latest remedy is a ten per cent solution of the sulphate of copper. Many cases of Vincent's angina get well under local measures without any general treatment.

Dr. Dabney will probably recall a paper published by Shea, of Memphis, Tennessee, in the Southern Medical Journal about two years ago, on the subject of Vincent's disease. It was a very interesting and complete description and so far as I knew at that time he was the first to apply the term "Fourth Venereal Disease" to Vincent's angina. My attention has since been called to the fact that as early as 1904, a French author suggested this name.

S. G. Dabney: Vincent's angina is a disease of very varying character as we see it. Dr. Graves saved me from making a mistake in diagnosis two or three years ago in a case of this kind. I was extremely suspicious of syphilis. A young man came to the office with a most typical ulcer involving the mucous membrane, it was perfectly symmetrical, covering the tonsils and extending over on the pillar of each side. It looked extremely like secondary lues. He was well within a week under simple measures locally applied. I merely mention this to show that many patients with Vincent's angina get well under simple treatment.

The worst case of Vincent's angina I ever saw was a few years ago, the patient being shown before the County Medical Society. It was the second case of the kind I had ever seen and was exceedingly destructive in type. Richardson, of Washington, D. C., has reported several similar cases and if I am not mistaken with a few deaths. Stark read a paper on this subject some time ago and reviewed the local remedies which have been suggested. It is claimed that a ten per cent solution of arsphenamin in glycerine applied locally will cure the great majority of them.

My principal object in discussing the cases reported by Dr. Graves was to call attention to the great variation in their severity. A considerable proportion of them will yield to comparatively mild, simple local applications within a short time. The very severe destructive types of the disease are rather rare, and in such cases the intravenous use of arsphenamin seems to be the proper method of treatment. The milder forms of the disease are more common.

I saw an article in the Laryngoscope for November last in which the author claimed brilliant results from local applications of a ten per cent solution of the sulphate of copper. Some of the cases are mild and will yield to very simple local applications, others are severe, destructive, and difficult to cure.

Stuart Graves (closing): I tried to make it clear when mentioning the two cases of Vincent's angina that the treatment with arsphenamin was nothing new. I believe this drug was first used in the treatment of Vincent's angina about ten years ago. There are a very large number of spirochaetes but there should be no difficulty in differentiating the spirochaetes of Vincent's and of syphilis, especially when examined fresh by dark field illumination.

The point I desired to make was that Vincent's angina of the fulminating type which will not yield to or cannot be treated by topical applications, responds marvelously to intravenous medication with neoarsphenamin.

The first patient was treated by Dr. Young with intravenous injections of arsphenamin and made a prompt recovery. Everything known had been tried locally without appreciable effect. The patient was well after three doses of arsphenamin had been administered.

The second patient was very much debilitated when she developed Vincent's angina. The attending physician, Dr. Morris Flexner, said she had about the worst attack of grippe he had seen this winter. The Vincent's organisms were very numerous and the disease extended like wildfire. The woman was unable to open her mouth and could not eat for five days. We tried to give her milk through a glass tube but could not do so. A soft catheter was also tried without success. She had to be kept under the influence of morphine on account of the severe pain. Yet within a week, after three doses of arsphenamin, she was perfectly well.

So far as organisms are concerned, spirilla like those of Vincent's are sometimes found in smears from ordinary sore throat or about the teeth, but the smears present an entirely different picture than is found in the fulminating type of Vincent's angina where the fusiform bacilli are always associated with characteristic spirilla.

DIVERTICULA OF THE ESOPHAGUS.*

Charles G. Lucas, Louisville.

Any interference with the normal act of deglutition is a source of anxiety and soon causes the sufferer to seek medical advice. Of all conditions involving the esophagus, diverticulum is often the least suspected.

As a rule, symptoms referable to this condition do not develop until middle life or beyond. Since the routine use of the Roentgenray numerous cases have been discovered.

According to Carmody$_1$ the esophagus begins six inches from the incisor teeth, back of the cricoid cartilage at the sixth cervical vertebra. It is ten inches long and passes through the diaphragm at the tenth thoracic vertebra, sixteen inches from the teeth. It is crossed by the arch of the aorta back of the middle of the first piece of the sternum, ten inches from the teeth.

Halstead classified diverticula as follows:

"A. Pressure of pulsion diverticula:

1. Those of the pharynx.

2. Those of the pharyngo-esophageal junction: the border line cases or the Grenz diverticula of Rosenthal, also known as Zenker's diverticula.

3. Diverticula having their origin near the bifurcation of the trachea just above the left bronchus. There are the epibronchial diverticula of Luetgert.

4. Deep seated diverticula, mostly found near the esophageal opening in the diaphragm. These are also called epiphrenal. The orifice is generally a short distance above the diaphragm, the fundus of the sac resting upon it.

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B. Traction diverticula.

C. Traction-pulsion diverticula."

The pressure diverticulum, first described by Zenker and Ziemssen is usually found in the cervical portion of the esophagus, behind the cricoid cartilage on the posterior wall at the juncture with the pharynx. Judd$_2$ states that " this weakness in the wall of the esophagus is the result of arrangement of the musculature of the lower end of the pharynx and the upper end of the esophagus. During the act of swallowing considerable pressure may be exerted from the inner part of the esophagus, and it is quite natural that the inner coats might be gradually forced through a chink in the outer coats and in this way form a simple pouch. The pouch would tend to increase in size each time the intra-esophageal pressure increased until it became large enough to hold accumulated food and mucus from the esophagus. The accumulated food would also tend to increase the size of the pouch." In contradistinction to diverticula of other portions of the gastro-intestinal tract, these pressure diverticular contain only the mucous membrane and submucosa in the hernial sac.

Traction diverticula are not uncommon. They are usually found in the thoracic portion of the esophagus and are produced as a result of some previous irritation, often a broken down lymph gland with its resulting cicatrix or other pathological conditions of the pleura, lung or mediastinum, the adhesion pulling on the esophageal wall and gradually giving rise to the minute funnel-shaped diverticulum which increases in size as the result of increased intra-esophageal pressure. These diverticula vary in size from the small funnel-shape to the size of a pear.

The symptoms depend on the size and position of the diverticulum. In some cases dryness of the pharynx is the first symptom noticed: this may persist for quite a while, followed by difficulty in swallowing and regurgitation of food. In some cases a choking sensation is noted while in others, when the diverticulum has attained some size and is filled, the patient may complain of a "lump in the throat." Excessive secretion of mucus is often marked. This has been a pronounced symptom in a case under observation for several years in which a traction diverticulum developed after a severe pleurisy. Bad breath, due to decomposing food in the sac, is often noticed. Constant "indigestion" has been a feature in one of the cases the subject of this report, and since being told of his condition this patient has often noticed a gurgling noise in the sac, especially on manipulation. Pain is not usual unless ulceration occurs, but this may follow the decomposition of food or as the result of irritation from hard particles of food or seed in the sac. As a result, periesophagitis may ensue with the formation of abscess and rupture into the surrounding tissues. In some cases with a large diverticulum the pressure from a full sac may be so great as to bring on serious respiratory symptoms with increased difficulty in swallowing. Under such circumstances vomiting may be induced for relief.

Occasionally a case may be seen where there are no symptoms referable to the esophagus. Judd reports the case of a man, age 42, who had been treated for "stomach trouble" for years in whom there were no symptoms of esophageal involvement. An x-ray examination of the stomach was negative, but revealed a diverticulum in the lower third of the esophagus.

Diagnosis is made by means of the Roentgen-ray. With the patient in the right anterior oblique position in front of the fluoroscope, a thick barium-mucilage of acacia mixture is given in tablespoonful doses. Several plates are then made with the patient in the same position. After outlining the diverticulum with the thick mixture the ordinary barium meal is used to outline the entire esophagus.

The esophagoscope is also employed in some cases and is of service in determining the size and character of the opening into the diverticulum. Personally, I have not used it in any case.

During the past year I have encountered several diverticula and wish to report two cases illustrating the two types described above.

Case I—Mr. X., age 60, had the usual diseases of childhood; only occasional sore throat and three attacks of grippe; for twenty years was subject to attacks of bronchitis and at one time had pneumonia; no influenza; has had some evidence of indigestion during the past twenty years; was first seen five years ago and was relieved by treatment. About a year ago patient returned with the following history: Was a good sleeper; had no fullness or heaviness after eating unless too much food was taken; at times, had a feeling of soreness with gas and some pain under shoulders; character of the diet immaterial; has occasional belching; no nausea; no vomiting; bowels regular; has increased in weight in the past few years. Physical examination was negative. After several plates had been made with the ordinary barium meal a large diverticulum was found in the lower third of the esophagus. At this time some air was noticed in the cavity of the diverticulum. A week later he reported again and was feeling more comfortable. A thick barium mixture, with acacia, was used at this sitting and filled the cavity completely. A week later returned again with complete relief of all symptoms. He was placed on a bismuth mixture with instructions to take it, in half glass of water, twenty minutes before eating. Since then when this plan has been followed has had almost complete relief from the "indigestion." During the past summer, while away from the city and indulging in all forms of food, with a variety of alcoholic drinks, and omitting his bismuth mixture, has had an occasional return of symptoms, but has been in much better condition in regard to his indigestion than formerly. Of late has passed through another attack of bronchitis. Wassermann was negative.

Case II—Mr. Y., age 56, had the usual diseases of childhood without incidence; also chills and fever. In 1890 a very severe attack of grippe; since then has had several attacks, but none severe; at 36 a severe tonsillitis; one attack since. Has not been confined to bed in the past twenty years except for three days during the influenza epidemic. Had complained of indigestion off and on during the past thirty years, large meals and alcohol combinations perdisposing. He is awakened nearly every night with gas and sour stomach; soda gives relief. On awakening feels well and has an appetite for breakfast; about 11 a. m. is troubled with gas and gets relief from soda; this is repeated late in the afternoon, but he is comfortable after dinner. If solids are taken, patient has noticed occasional difficulty in swallowing and water is often taken to assist in the act. Pills appear to stick occasionally. He is conscious of a lump in the throat and has noticed that pressure on the neck may bring bubbles of gas into the throat. At times may have some pain in the same region and also in the back of the head. Bowels somewhat constipated; stools small but of normal color. No weight loss. Just about this time he was obliged to make a trip out West and, at my request, he stopped in Chicago to consult Dr. Frank Smithies. At this consultation, among several pathological conditions, a small diverticulum about the size of a twenty-five cent piece was found in the cervical portion of the esophagus behind the cricoid cartilage on the right anterior wall. Suitable recommendations for this and other pathological conditions found at this examination were made by Dr. Smithies, but the patient is one who is hard to control. Surgical intervention was advised, but has not been carried out. The use of bismuth was suggested in this case and at times gave fair results, but not the comfort as in Case I. Wassermann was negative.

Treatment from a medical standpoint applies particularly to the traction diverticulum. In some cases, like Case I, it is likely that the patient may live comfortably for many years by careful attention to his diet. Coarse food and alcoholics should be avoided. In some cases it has been necessary for the patient to try various positions in swallowing. If much mucus and the evidence of decomposing food is present lavage of the esophagus is indicated, and, if possible, the thorough cleansing of the sac. In the case reported, the patient has been so comfortable that nothing more than the administration of bismuth has been attempted.

In the pulsion type the indication is distinctly surgical and the results have been brilliant.

Dr. Judd, of the Mayo Clinic has been very much interested in this subject and in response to my letter concerning the results of the surgical treatment of diverticulum writes me that from January, 1908, to June, 1920, fifty-four cases were operated. To this he adds an additional thirteen from June, 1920, to the present time, making sixty-seven in all. I take the liberty of quoting from his letter:

"In general the results have been very satisfactory, indeed. We have seen some of our cases who were operated several years ago who were completely and permanently relieved. However, we have had three or four who have complained of a sense of contraction at the time of swallowing and in whom it seemed best to pass a bougie. Usually after one dilatation this sensation disappeared. We have had one or two cases in whom there has been a tendency toward recurrence of the sac. In one of these I did a secondary operation which has apparently relieved the condition; in the other, passing a bougie accomplished the desired results. There have been three deaths; two of these I have previously reported in my papers. The third was a similar case.

I have two of these cases in the hospital at the present time and just discharged one a day or two ago.

I am very much interested in this condition. I feel that the present plan of treatment gives very satisfactory results and with very little risk from the operation."

BIBLIOGRAPHY.

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2. Judd, E. S., Surgery, Gynecology and Obstetrics, Vol. XXVII, No. 2, p. 135.

DISCUSSION:

J. Garland Sherrill: The subject of esophageal diverticula has always been of extreme interest to me. The wife of a prominent educator came to me suffering from a diverticulum of the esophagus. It was located at the site where pressure diverticula are usually seen, i. e., about on a level with the fifth cervical vertebra, and gave rise to the usual train of symptoms. A small movable mass was noted on deglutition. A point Dr. Lucas did not mention is that sometimes these patients can empty material from the esophageal pocket some time after certain articles of food have been swallowed. In other words, some time after the food would have been digested had it been taken into the stomach. Operation for relief of this condition was easily accomplished. The diverticulum had occurred in the usual site where there was some defect in the musculature as stated by Dr. Lucas, and we had practically a hernia of the mucous and submucous coats making a small rounded mass. Of course, when this was emptied there simply remained a small sac. This was easily ligated and the denuded surface covered with tissue from the immediate neighborhood. The operation was performed under ether anesthesia. The patient subsequently developed pneumonia and died. I did not attribute the pneumonia entirely to the anesthetic; it was probably due to aspirated material.

Operations on the esophagus are easy and the technique not complicated. In the future I shall not resort to general anesthesia in an operation of this kind, but will insist upon the use of a local anesthetic. When the skin is cocainized and severed there is practically no pain beneath. This operation is feasible and quite simple under local anesthesia.

If the risk of pneumonia can be obviated, and I believe this can be done to a great extent by using local anesthesia, the chances of recovery of the patient are greatly increased.

I also wish to say that diverticula occurring low in the esophagus are not always so easily relieved as we have been led to believe. A number of years ago I made the error of attacking what I thought was an aneurysm of the left subclavian from the back by removing a portion of three ribs. During the operation I was surprised at the ease with which the structures in the posterior mediastinum could be reached by this method of approach. I believe in that way one might attack diverticula in the lower end of the esophagus and thus relieve patients who might be suffering intensely because of the presence of the diverticula. However, if the patient suffers but little I would be inclined, in diverticula situated low in the esophagus, not to recommend surgical treatment, but even in such cases operation under local anesthesia might be satisfactory.

We have learned that rib resection can be accomplished very successfully under local anesthesia, and after the rib has been removed the other tissues posterior to the pleural cavity can be anesthetized very readily. It seems to me we have quite a wide field for the use of local anesthesia, much wider, in fact, than we have been led to believe previously.

Louis Frank: I wish to compliment the essayist on his excellent presentation of the subject. Bearing on the question of approach in dealing surgically with intrathoracic esophageal diverticula carcinoma, etc., Dr. Howard Lilenthal in an article in the September, 1921, Annals of Surgery, reports the successful removal of an esophageal carcinoma through the posterior method of approach. The operation was performed in two stages. A skin-flap tube was constructed to take the place of the tumor-bearing portion of the esophagus which was resected. The patient made an excellent recovery. Of course, traction diverticula of the esophagus do not interest us so from a surgical standpoint, but I can see no reason why this posterior method of approach should not be used in handling those of the pulsion type low down.

The great bug-bear in operations upon the esophagus for diverticular or other lesions regardless of their situation has been the point mentioned by Dr. Sherrill; that is, a resulting pneumonia, or of greater importance still, a septic mediastinitis, which produces death. Perhaps the greatest difficulty in operations for diverticula, and I speak now of those situated high in the tube, has been the avoidance of infection and the subsequent mediastinitis which results. In Judd's paper published last year he reported about fifty cases with three deaths. The two fatalities mentioned by the essayist occurred from pneumonia; the other patient died from leakage and infection. I believe he has had a still later death which he does not explain.

The occurrence of leakage and infection (mediastinitis) has led to development in the operative technique in the removal of esophageal diverticula to a point which seems now to have obviated these dangers if that the operation is done in two stages. Judd demonstrated the wisdom of this plan and last year exhibited some beautiful illustrations in his paper. The first stage of the procedure is done under general anesthesia, the sac of the diverticulum being isolated and brought upward and the esophagus stitched to the skin. Ten or twelve days later under local anesthesia the diverticulum is removed and the wound sutured.

In the January 29, 1912, issue of the Journal of the American Medical Association, there appeared an extensive article by Bevan on the subject of esophageal diverticula. He mentions the same factors as causes of death as have been outlined by the essayist and the troubles he encountered in surgical treatment until in conjunction with Sippy he developed a plan of procedure which will positively prevent recurrence. It cula; that is, under local anesthesia he makes an incision along the inner border of the sternocleidomastoid muscle, retracts the blood vessels behind and the thyroid in front, which gives him free access to the involved area. The sac of the diverticulum is then carefully isolated and instead of being ligated and removed it is invaginated by means of several pursestring sutures. Small diverticula are finally obliterated by inserting several lateral sutures. Larger diverticula are crushed in the center with forceps, ligated, the distal portion removed, and the remainder invaginated with pursestring sutures and longitudinal sutures as already described. Under this plan he has had as much success as has Judd with his method of operating.

With all these changes and improvements in operative technique it appears there is nothing which will postively prevent recurrences. It seems to me that we have practically the same conditions to deal with here as in herniae elsewhere; that is, if the sac is simply ligated and removed there is likelihood of a recurrence at the same point. A hernia properly closed may remain so for a long time, perhaps forever, yet we know recurrence is possible.

Diverticula occurring high in the esophagus are not true diverticula because they occur just at the junction of the esophagus and the pharynx along the posterior wall where the constrictor muscle fibers come together leaving a small gap. Small pouches of this character do not seem to cause serious symptoms and they have been successfully treated by invagination.

I have always been interested, although it is entirely out of my line, in the work of Jackson. I have read with much interest many of his articles, some of which have appeared during the last year or two in the Annals of Surgery and the American Journal of the Medical Sciences. I believe he has recently advised use of the esophagoscope in the diagnosis and treatment of smaller esophageal diverticula. If I am not mistaken Mosher has also used this plan in several cases with good results. The latter reports three cases in which the septum between the oesophagus and diverticulum was incised through the oseophagoscope with resultant cure.

As the essayist has stated, esophageal diverticula usually develop late in life. I have recently read the work on surgical diagnosis by de Quervain which gives some extremely interesting information on this subject. He places much stress upon the diagnosis of esophageal diverticula and allied conditions without use of x-ray. He states that accuracy in diagnosis can be assured without the use of the Roentgen-ray. He makes another point which we should bear in mind, and that is very often there may be obstruction and enlargement or dilatation of the esophagus to an enormous degree, yet if a tube can be introduced without difficulty the enlargement is due to external pressure. He also calls attention to the fact that in so-called cardiospasm the tube meets with temporary obstruction. The dangers of esophageal instrumentation in malignant disease of the esophagus must always be borne in mind. There is arrest of the tube by its entering the diverticulum during examination in cases of that character.

B. W. Bayless: In some instances esophageal diverticula attain a considerable size. The Roentgen-ray plate which I exhibit shows one just above the aortic arch which had a capacity of about six ounces. The patient was a man aged seventy years who gave the history of having trouble in swallowing for forty years. He was in the habit of taking a glass of water first, thus filling the diverticular sac, then proceeding to eat his meal. After completion of the meal he would contract the neck muscles and lean forward and thus partially empty the sac. He could not completely empty the diverticulum, because later examination showed it to be about half filled with fluid. Forty-eight hours after our first examination following a barium mixture administration there still remained some of the mixture in the sac. Particles of food remaining in the diverticulum would ferment and cause a great deal of irritation.

The picture is shown merely to illustrate how large some of these esophageal diverticula may become.

Guy P. Grigsby: I recently had an opportunity of seeing a case of esophageal stricture in a patient about four years old referred to me for gastrostomy. I inquired around among some of our confreres about the possibility of the stricture being dilated through the esophagoscope, and finally referred the patient to Dr. Marion E. Pirkey. I was amazed at the ease and skill with which he used the esophagoscope. Dilatation was readily accomplished and after two or three treatments the child was perfectly relieved and there has been no recurrence. I might say that after the first treatment the child was able to swallow fluids without any difficulty whatever.

In esophageal diverticula, even those involving the lower portion of the tube, I believe much valuable information can be gained by careful use of the esophagoscope. In this way it would be possible to determine the amount of retention, the degree of ulceration, if any, and much might also be done in the way of local treatment.

In the case I have mentioned I was very much amazed and gratified at the ease with which the esophagoscope was used and believe the child was saved what might have been a serious operation by the careful esophageal manipulation in the hands of Dr. Pirkey.

J. R. Peabody: Dr. Frank and Dr. Grigsby have covered a point I intended to make in reference to the importance of Jackson's work with the esophagoscope. This is something more or less new so far as Louisville is concerned. Ten years ago when I began special work I spent two weeks with Jackson in Pittsburg. Everybody knows how skillful he is in this line. At that time some of the best men in New York were sending their patients to him and he was doing an immense amount of work. I realized there would be little chance of my perfecting his technique in a city the size of Louisville where patients were seen only occasionally in whom this class of treatment was required, as Jackson would tell every one that it took months and months to become proficient. It must be remembered that he does nothing else but work with the bronchoscope and esophagoscope and patients are sent him from all parts of the country. Arrowsmith and a few others are now also doing this class of work. Dr. M. E. Pirkey was an interne under Arrowsmith. Although Jackson is very much interested in having men with him, he will never let any one touch his instruments. He teaches his methods, but no one can acquire the technique from him. It is difficult in this country to become proficient in this class of work unless one is an interne. I had some experience in Vienna at one time. Four or five of us clubbed together and paid a small fee for the privilege of working in one of the large throat clinics. We were allowed to pass the bronchoscope five or six times, the patients being perfectly healthy people supposed to have a foreign body in the bronchus. Passage of the esophagoscope is more difficult and the procedure is attended by some danger unless extreme care is used. However, in the hands of an expert esophagoscopist the diagnosis of diverticula is very simple. Jackson's latest method of treating these diverticula is to introduce an esophagoscope into the sac which is then pushed toward the left side; under local anesthesia the surgeon then dissects the sac free; the esophagoscope is withdrawn from the pouch and allowed to remain in the esophagus so the surgeon will not injure the esophageal wall during the completion of the operation. A great many operations have been successfully done according to this technique.

Chas. G. Lucas (Closing): I started my paper by saying that any interference with deglutition always gives rise to trouble. I have found most of these cases, and I have seen quite a number, were readily diagnosed by the roentgen-ray. I am sorry to say that I do not use the esophagoscope. There are several men in Louisville who are doing good work with this instrument.

I recall years ago having seen a case of ulcer low in the esophagus in an old lady who had been unable to swallow any meat for ten or eleven years, and I passed a stiff stomach tube through the esophagus. I would not care to do that now. She was able to eat a little meat the following day. The patient was seen with Dr. Hall, who passed the esophagus very skillfully and found an ulcer in the lower portion. Nitrate of silver was applied. Within three weeks she was much improved and finally made a complete recovery. As mentioned in the paper this instrument serves a useful purpose in diagnosis, but personally I have never used it.

The question of cardiospasm has been mentioned. This is something which has always been of special interest to me. When the patient has trouble in swallowing liquids, some lesion may be expected at or near the cardia. Cases of spasm of the cardia are not uncommon; I have seen a number of them; and the diagnosis is not difficult. These cases are always relieved by the administration of belladonna. A small quantity of barium will usually pass for a minute or two and then stop. After a course of belladonna it is found barium passes into the stomach without interruption. I have also found when the patient can belch freely relief is obtained from the spasm. That is one of the characteristics of spasm of the cardia, the patient is unable to belch.

Some wonderful work has been done in connection with lesions of the esophagus. Dr. Fran spoke of the Lilienthal operation for esophageal carcinoma. I read an article only recently in which it was stated that in the famous Torek case operated upon nine years ago for carcinoma of the esophagus the patient was still living.

Dr. Walter Mills, of St. Louis has been doing some interesting work with radium in cancer of the esophagus. I do not know of any condition which is more hopeless under ordinary circumstances than carcinoma of the esophagus.

I was particularly interested in the roentgenogram shown by Dr. Bayless and referred to in his discussion. It represents the largest esophageal diverticulum that I have ever seen. It is interesting to see how these patients have to swallow and the difficulties some of them have.

Referring to Dr. Frank's remarks; Dr. Judd states that all of his esophageal work is now being done in two stages.

The Leukocyte Count After Operations and Traumas.—Romani quotes conflicting authorities in regard to increase in the number of leukocytes after ether anesthesia, trauma and operations in general. He reports extensive research of his own which has demonstrated that in all these conditions the leukocyte count runs up.

THE PREGNANT WOMAN.*

By JAMES S. LUTZ, Louisville.

In presenting this paper before this society, I am not so conceited as to think that I can tell this body of doctors anything new on the subject that I have chosen, but to refresh it in our minds and to renew our obligations to the community in which we each live.

I am sure we are all prone in the rush of our work to be neglectful in giving the proper instruction to our pregnant women, and the reason is very easy to be found. It is because the people have not yet become educated to the fact that the greatest sphere in medicine is to keep the citizens of the country well, and not the mere fact of treating them when they are sick; in other words, preventive medicine has not reached the stage that it deserves.

How often have you told some young woman in her first pregnancy just how you think and know she should do and along comes Old Grandma Know It All and tells her that everything you have told her is foolishness; that she had ten children and never did have a doctor with her, and that she only had childbed fever about five times and got well, and the chances are that the patient will take the old woman's word in preference to your advice. I wish to say that it is not only in the rural districts that this applies, for I have seen it in some of the best seemingly educated families of the cities.

An expectant mother, as soon as she feels that she is pregnant, should consult her family physician, so that he may be able to give her the advice that is so much needed in the first two or three months, which very often is the most trying time, caused by the nausea and vomiting. And just a word here to the medical attendant, it is necessary to speak to the husband in regard to this condition of the wife, and explain to him the trying ordeal through which she is going, for often we find that he becomes impatient. But, thank goodness, men don't have babies, for if we had to contend with men having morning sickness, we would want to kill them all; for if there is anything that wants all the world to stop and sympathize with him, it is a man when he is nauseated.

The pregnant woman should continue her usual routine of living, provided that it is not too strenuous. I do not think that she should ride horse back or take long automobile trips, play tennis or run a sewing machine, or do heavy lifting, but she should take exercise in the form of walks, and I believe that this is the best of all exercises for her. A woman that will take a walk of one or two miles in the evening will find that she sleeps better, and that her back will not ache so much. It will strengthen the muscles of her back and help to overcome the constipation that most of these patients have. And another thing that I have found is that the movements of the child do not annoy the woman that takes these walks nearly as much as the woman who sits quietly all day. Most women will tell you that they get plenty of walking around the house, but it is extremely doubtful that a woman will walk a quarter of a mile during the entire day, and if she does not believe this she can convince herself if she will get a pedometer and carry it and see just how far she really does walk. Now another exercise that she should take is the one we gave the boys in the army, "Draw in your belly and stick out your chest" and breathe deep. If you can get a woman to do this she will not complain so much of shortness of breath, and she will not have the pendulous abdomen that so many have following childbirth.

Every pregnant woman should get at least eight hours of sleep, and I think nine is better every night, and she should lie down for one or two hours every afternoon. If she will do this it will help to keep down that nervousness that so many have because they do not get enough rest.

A woman's appetite should govern her diet to a great extent, for the things that she craves are the things that her system is calling for. I never did believe the craving for abnormal articles to eat, such as lime, dirt, chalk, etc., was anything more than the result of auto-suggestion caused by some old superstitious woman or some of those books that are sent around to pregnant women by some of the disreputable drug houses. I think this can be put in a class with the birth mark theory. There is nothing in it—these beliefs are found mostly among the ignorant people.

The pregnant woman should not eat too heavily of the red meat, such as beef, mutton, fresh pork or ham, but I am sure it is a mistake to have her abstain from these articles even if our vegetarian friends do insist upon it. The eating of fowl, fish, bacon and wild game should not be forbidden, as they are beneficial if the patient enjoys this kind of food. She should eat plenty of fresh vegetables not only for their food value, but for their aid in keeping the bowels regular; and then they contain the things that we are all talking about, and do not know much about, except that they exist and are the most necessary thing that we have in our dietary—that is the vitamines. We know that the whole wheat flour, green peas, tomatoes, kale greens and oatmeal are especially rich in these; and just here, I want to say, that the reason so many pregnant women are able to eat greens and retain them when all other forms of food nauseate her, is because of the vitamines that the greens contain. We also know that there are many children born with rickets, and this is caused by the diet of the mother having been deficient of vitamines while carrying her baby. One other article she should eat is fruit. To sum up the dietary of the pregnant woman, we might say and not be wrong in the majority of cases, eat what you desire, especially vegetables and fruit, and be sure to drink plenty of water. She should drink at least four pints of water besides what she drinks at meal time of milk, tea or coffee in twenty-four hours.

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*Read before the Muldraugh Hill Medical Society.

The clothing that should be worn by the pregnant woman is very important, and I believe that here the medical adviser can be of great help to his patient. I think it is just as much his duty to instruct her as to the clothing she shall wear as to prescribe the proper dietary. There is no reason why she should go into isolation during the nine months, as many a woman will do unless she can arrange her clothing so that her condition will not be too conspicuous. The dress makers have come to our rescue and now make a maternity outfit. By making a few alterations during the last four months of pregnancy only a close observer would be able to notice that there was anything out of the ordinary in the appearance of the wearer. Nearly every pregnant woman would feel more comfortable if she wears a maternity corset or an abdominal support which hangs from the shoulders. Every woman that has a pendulous abdomen should wear the abdominal support. Most every woman is very sensitive as to her appearance, but if she can dress so as not to attract attention, she will continue her social duties as usual, which is a great preventive of melancholia, a condition that we see frequently in these cases. The pregnant woman should take her daily bath, but should not take it too hot or too cold, and during the last three months she should not take a cold bath. If she has had previous miscarriages or abortions she should not take a cold bath during her pregnancy.

Every woman should have her teeth looked after by a good dentist, as soon as she knows that she is pregnant, for the old saying that for every child the mother sacrifices a tooth is not far wrong. Careful attention to her teeth at this time will save her many an hour of suffering with neuralgia that seems to be so frequent in these cases. An old idea that has been handed down from one generation to another is that if a pregnant woman has a tooth extracted it will cause her to miscarry. I have never seen this occur, and take no more stock in it than the fact that if a woman sees something disagreeable the baby will have a birthmark. Pregnant women should be cautioned not to wear the circular garter if she has a tendency for varicose veins.

The duties of the doctor to the patient are many, and in general practice quite different from the routine of the large lying-in hospitals. In reading the report in the last A. M. A. Journal of the Long Island College hospital, one wonders if the writer carries out in his private work anything like the outline that he gives for his clinic. I am sure that he does not, as it is not at all practicable. When a patient presents herself at the office with the belief that she is pregnant, it is our duty to take enough time to explain to her the symptoms of early pregnancy, and if the signs and symptoms warrant it, she should then have a thorough phyiscal and vaginal examination, and a careful taking of the family and personal history may be of great service to the doctor, especially if she has had trouble in previous pregnancies.

The treating and preventing of the morning nausea and vomiting is one of the most troublesome things that we have to contend with. I suppose that nearly every drug in the pharmacopeia has been tried and found wanting; on the other hand, we sometimes think that a certain drug has stopped the vomiting when probably it would have stopped without it. I believe that we can to a great extent prevent the symptom if we can get the patient to follow certain rules as to her diet and mode of living. I know there are cases that seem to be beyond relief, and it sometimes becomes necessary to interrupt the pregnancy.

Elimination by the bowels, the kidneys, and not to be forgotten, the skin is the way that nature throws off the poison of the system, and this is the greatest of all preventives of nausea. The best thing that we have for all three of these organs is water. Have the patient drink at least four pints of water in the twenty-four hours. If she does not drink plenty of water, it is very doubtful whether you will be able to get much results with any form of treatment. When it is necessary, for proper elimination of the bowels that some laxative must be given, the cascara mixtures seem to be the best. Occasionally it is necessary to use an enema or glycerin suppository, but these should not be used every day. And just a word that I wish to say here is that the use of petroleum is in my mind only to be mentioned to be condemned. I honestly believe that it is only a short time before the use of this stuff will be discontinued by the entire medical profession.

Next to constipation comes sexual excess as a cause of nausea and vomiting, but this being a mixed audience I will not go into detail. Never fail to instruct your patient along these lines.

The vomiting that is caused by the deranged or diseased kidney is the most serious of all, and it is the one that will add a few gray hairs to your head before the end of the nine months. I will not try to tell you how this should be taken care of, for every case must be taken care of differently. It is the danger of the kidney that the urine should be examined often through the pregnancy. My rule is to examine the urine when the patient first reports, and if that specimen is all right, examine another at the end of the fifth month, another at the end of the sixth month, two during the seventh month, and then every ten days until the patient is delivered.

The blood pressure should be taken at the first examination, at the sixth month and again at the eighth month. I believe if the blood pressure was taken oftener, when the patient starts into labor, the doctor would be able to prevent many cases of eclampsia.

I thank you for the privilege of reading this paper and am glad to say more was brought out in the discussion than was in the paper.

Diphtheria Carriers.—Between October, 1918, and August, 1919, seventy-five cases of diphtheria carriers were treated at the Walter Reed General Hospital. The successful treatment of carriers depended not so much on the kind of antiseptic used but on the ability to reach the organism with the antiseptic, or when possible on complete removal of the infected foci. Simmons and his associates urge that the danger of active wound infection should be recognized and early treatment with large doses of diphtheria antitoxin should be given. Forty-eight and forty-two per cent, respective, of the strains from contact throat carriers and wound carriers were very virulent, while 84.6 per cent of those from convalescent throat carriers and 80 per cent of those from wound cases were very virulent. Neither morphology, fermentation reactions nor any other cultural characteristic gave any indication of the degree of virulence of the organism studied. No diphtheria bacilli were found in cultures of the blood, urine or feces of cases or carriers, except from one fatal wound case post-mortem.

REPORT OF A HOPELESS CASE.*

By J. Garland Sherrill, Louisville.

I report one of the most pitiable cases that I have had the misfortune to observe in many years. I was asked to consider the question whether anything could be done to straighten the legs of the unfortunate individual.

The patient is a woman now twenty-eight years of age who looks like a child of twelve and whose mentality is probably that of a child of five or six years. She is able to talk, but not fluently, she is deaf in one ear, blind in both eyes, the upper extremities are small, but capable of some movement, both legs now in a state of spastic contraction and flexion.

The history obtained from the mother is that this child was born after a labor of two and a half days' duration and very difficult. She said for two years the child did not seem right, as she expressed it; that the child did not walk until two years old, then began to walk and was able to do so fairly well until the age of nine years. The woman said she had never had syphilis and the husband also denied having the disease. The child's first set of teeth promptly decayed and were all extracted; she never had her second set of teeth. At the age of nine she had an attack of some kind—probably epilepsy—and I think the trouble with her eyes occurred about that time. Since then she has had repeated epileptic seizures.

A Wassermann test was made of the blood some time ago and found positive. I understand she was given iodide of potassium, but in what dosage I do not know. Like most of these cases the treatment was probably imperfect. After the Wassermann test was made she received three or four injections of arsphenamin without any particular benefit. Two years ago she had a continued night of epilepsy; that is, one spasm after another during the entire night. Following that she developed this spastic condition of the legs with extreme flexion, the right leg being more involved than the left. The knee reflex, both sides, is somewhat exaggerated.

The patient is blind in both eyes, the left eye being the site of a staphyloma with iritis in the other eye. The mother was told several years ago that the child had atrophy of the optic nerve. I told the mother, when she asked my opinion as to whether anything could be done, that so far as I could see there was no hope for the patient; that there was no use in giving an anesthetic and trying to straighten the legs; that the result would be only temporary therefore the procedure would be useless.

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*Clinical report before the Louisville Medico-Chirurgical Society.

This is the most pitiable case I have ever seen and one of the most interesting. Apparently there must have been some hemorrhage into the brain at the time of delivery, in addition the child probably had congenital syphilis, she has been defective all her life. Her ordinary functions are properly carried on, but she merely exists and is a great care to the family.

The mother said that a few days ago the patient developed some trouble with her uriary bladder; that is, she strains a great deal in trying to evacuate the contents of her bladder. I presume that is due to over-distension.

This is a hopeless case any way one looks at it, and it only points a moral to sex relations in regard to coming generations.

DISCUSSION:

W. E. Gardner: Cases such as the one Dr Sherrill has reported are pathologic curiosities more or less, and undoubtedly as he has stated, this is a case of hereditary syphilis. Of course, there is envolvement of both the brain and spinal cord in this case and the spastic condition of the lower extremities indicates that probably the lateral columns are affected. When Dr. Sherrill first spoke of the case I thought it might be one of Little's Disease with congenital idiocy. However, in such cases both the upper and lower extremities are usually involved. It is probably a case of hereditary syphilis with envolvement of both cerebral hemispheres and lateral columns of the cord. We know that epilepsy, spastic paraplegia, blindness, deafness, etc., while often due to other causes, may also be due to syphilis, either heredity or acquired.

I have only seen a few cases of Little's disease and think it is rather rare. The prognosis is unfavorable in all of them.

Wm. J. Young: I think Dr. Sherrill is right in his prognosis in the case reported. There is evidently extensive involvement of the central nervous system. Some of these patients show absolutely no response to intensive intravenous or intraspinous treatment. The symptoms now present might be held in obeyance by antiluetic treatment, but there is little hope for improvement.

I was interested in what Dr. Sherrill said about the possibility of a brain lesion at the time of birth. From the history related, however, I believe the whole trouble is due to hereditary lues with central nerve involvement.

In regard to the treatment of syphilis of the central nervous system, I recently saw in the Journal of the American Medical Association a very interesting article on this subject. The author injects 100 c. c. of a fifteen per cent saline solution into the vein six hours before giving a full dose of neoarsphenamin. The latter drug is given intravenously. He has found by spinal puncture that he gets a much larger percentage of arsphenamin in the spinal fluid by this method than in any other way. He refers to thirty patients treated by this plan with excellent results.

J. Garland Sherril (closing): There is little to be said in closing. The question arises what was the factor responsible for the development of this spastic condition if not the epileptic seizures. It seems likely that there was already encroachment on some nerve center that produced the epileptic attacks, and that there was induced by the frequent attacks of epilepsy another hemorrhage into the structures of the nervous system.

The case is certainly interesting but absolutely hopeless so far as I can see.

ARTERIAL HYPERTENSION.*

By C. W. Dowden, Louisville.

In our attempt to interpret properly blood pressure readings, let us first be perfectly frank and acknowledge to ourselves that there is still much that is unknown concerning this phenomenon and that there are many factors that cannt be controlled. Furthermore, we must admit that our interpretation of blood pressure in the past has very often been wrong; and in the future to recognize the fact that there are wide variations, and that the readings are inconstant and extremely difficult to evaluate.

We are, in a general way, familiar with the modus operandi that is responsible for blood pressure level, namely, that it depends upon the quantity of blood expelled from the left ventricle with each systole, by the frequency of the heart beat, by the elasticity of the arterial wall and by the peripheral resistance; but, while we are fairly familiar with many of the factors which underlie this sequence of events, there are many others which cannot be explained and of which up to this time we have no knowledge.

Out of the mass of conflicting literature that has accumulated the past ten years, the most important lesson to be learned is that blood pressure in the normal individual varies widely, frequently going as high or higher than in many advanced diseases involving the cardio-renal-vascular apparatus; and secondly that many pathological conditions involving this same system will produce pressures lower than the maximal range to which the normal individual is subject. It will be seen therefore that any rule, such, for instance, as the age plus 100, to establish a *normal*, cannot be held as valid.

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*Read before the Fleming County Medical Society, July, 1921.

To simplify and for the sake of clearness it is probably wise to divide hypertension into two classes, viz: The functional or physiological which is usually transient, and the organic which is usually permanent.

Functional Hypertension: The wide variation in the habits of individuals, as to eating, rest, exercise, etc., and the great difference in their mental make-up, such as nervous instability, emotion, etc., at once makes it evident that blood pressure readings should be taken under as nearly standardized conditions as possible and even then no figure obtained can possibly be acceptable as *normal* for all individuals. The above named influences, which are to be encountered in every individual, but to a different degree, will account for a variation of from 15 to 50 points in the systolic pressure. For instance, it can very easily be demonstrated by taking the readings shortly after the patient enters the office, and while in the sitting posture, and then have him recline and take the pressure every five minutes for 35 to 50 minutes. You will find in the functional cases that the pressure gradually declines to the normal, even though on first observation the reading was 140-150, or even in some instances 180. Finally a constant figure is obtained, which is well within the normal limits, and is the most accurate measure of the tension that we can obtain. This has been called by Tixier the residual blood-pressure. It will be seen therefore that the blood pressure reading should be taken at the same hour each day, and every five minutes with the patient in the reclining posture, until a constant figure is obtained. Without such a standardization of methods any therapeutic study of hypertension becomes valueless.

It is well at this point to recall the fact that vessel tonicity is maintained through the vaso-constrictor and vaso-dilator fibres of the sympathetic nervous system and largely through the middle or muscular coat of the artery. According to Luciana$_2$ there are accordingly constrictor nerves to the blood vessels corresponding to the systolic nerves of the heart, and dilator nerves, corresponding to the diastolic nerves of the heart. Therefore vascular rhythm and tonicity are analagous to cardiac rhythm and tonicity. This important anatomical fact makes it quite evident that any influence, be it metabolic, endocrinologic, toxic or psychic, may effect the musculature of the blood vessel, causing constriction and hypertonus. It should furthermore be evident, if such functional hypertonus be allowed to continue, that definite damage will result to the blood vessel itself, the heart or the kidney, thus bringing it in the class of organic hypertension.

Realizing that some of the simple causes of heightened pressure are dietetic error, alcoholism, worry, mental depression and emotion, it immediately becomes evident that repeated blood pressure readings are necessary to eliminate such influence.

It may even be necessary for the patient to remain recumbent for a period of twenty-four hours, with strict attention to diet and with full intestinal elimination before the actual pressure is determined.

Aside from these well known causes of increased pressure we have a number of other conditions which produce an increase in blood pressure of the functional class, in that there is no evidence of disease of the blood-vessel, heart or kidneys. Among these conditions with which we are familiar, are auto-intoxication (for want of a more expressive term), endocrine disturbances, especially the thyroid, infectious agents, syphilis, metallic poisons, neuro1circulatory asthenia, menopause, toxemias of pregnancy, cerebral growths and no doubt others.

Auto-intoxication: One familiar with the work of Lusk$_3$, Vaughan$_4$ and Bishop$_5$ could scarcely avoid the concurring belief that the toxic amino-acids, the group of chemical compounds called ptomains, and the other putrefactive products of the intestinal tract which act over long periods of time are agents which influence arterial tension. In an experience covering several years at a famous watering resort I was repeatedly impressed with the promptness and rapidity with which high blood pressures were reduced to normal after a few days of intestinal elimination with natural mineral waters. Such results, however, were only obtainable in the functional type of hypertension—the organic type usually being aggravated as will be later considered.

Endocrine Disturbance: While it is perfectly true that we have associated with various endocrine disturbances, particularly the thyroid, symptoms referable especially to the heart, it is also true that hyperthyroidism will produce hypertension before any preceptible damage to the heart has occurred. It thus becomes a valuable diagnostic aid in the early discovery of an endocrine unbalance before damage to the heart has occurred.

Infectious Agents, Syphilis, Metallic Poison: We scarcely need do more than merely mention the increase pressures that occur in connection with syphilis and the gastric crises of tabes, lead poisoning, etc. Most infections are associated with depressive readings, but it is well to remember that in the course of typhoid fever, where the pressure usually declines below the normal reading, that a sharp rise in the blood pressure accompanied by abdominal pain, suggests perforation of the intestinal wall. Influenza, pneumonia, diphtheria and most other infectious diseases show readings below normal and do not therefore admit of further discussion under the present title.

Neuro-Circulatory-Asthenia: This condition furnishes one of the most striking instances of unstable blood pressure. It was encountered so frequently in the late war that it became known also as the "irritable heart of soldiers." While, of course, occurring in other individuals, it was more common among soldiers, due presuambly to the fact that an anxiety neurosis played such an important part in the development of the symptoms, which were rendered acute in war time. These individuals were, to begin with, of highly nervous temperaments, accustomed for the most part to sedentary work and habits, necessitating excessive mental activity and unrest. consequently severe physical exertion, or at times acute infections, produced symptoms referable to the cardio-vascular system. Such symptoms as dyspnoea, precordial pain, palpitation, vertigo, fainting, tachycardia, etc., were not at all uncommon. Such individuals would show a very wide variation in blood pressure readings, at one time probably as high as 170 for the systolic and at other times 125, with the diastolic remaining within normal limits. It was necessary therefore in such cases to take repeated readings and under various conditions to obtain the normal pressure. Naturally the heart, kidneys and blood vessels had to be excluded through proper investigations to be later mentioned.

Menopause: Ives[6] suggests the name "Climacteric Hypertension" for that type so frequently encountered in women between the ages of 40 and 50, who are healthy in appearance, rather obese as a rule, and who are active, nervous and inclined to worry. They have epistaxis, headache, vertigo, numbness or sleeping of the extremities and on examination they show an arterial blood pressure of about 200 mg. Hg. for the systolic and a diastolic of over 100. No evidence of arterio sclerosis or kidney trouble is to be found in the physical examination or chemical examination of the blood or urine and the retinal picture is likewise normal. The symptoms usually depend upon ovarian dysfunction, frequently or usually associated with the thyroid, and under rest, proper diet, bromide sedation and endocrine medication (corpus luteum, ovarian extract, alone, or with thyroid extract) the pressure usually drops promptly and relief is obtained from the other symptoms.

Functional High Pressure in Obstetrics (Ives[6]): Probably in no branch of medicine is the knowledge of functional blood pressure more important than in obstetrics. The response of the arterial controlling mechanism to the toxins developed during pregnancy causes the advent of a toxemia and foreshadows the advent of the dreaded eclampsia. It is well to recall that the normal blood pressure in a normal healthy pregnant woman will average close to 118 mm. Hg. with a gradual increase in the later months. During the early months with nausea and vomiting, the endocrine unbalance may cause a drop of a few points, but Ives[6] believes that feeding these patients with ovarian glandular substance restores this fall. On the other hand, however, where a reading of 150 to 160 mm. Hg. occurs in the latter half of pregnancy and especially when associated with albuminuria, it constitutes very often the earlest signs of a toxemia which may suddenly terminate in eclampsia. This hypertension is purely functional, for following the birth of the child, in eclampsia, the pressure will fall to approximately normal figures within 48 to 76 hours. The following outline is therefore suggested by Ives "Invariably upon the acceptance of a maternity case, obtain the blood-pressure data and record the same, verify the findings monthly throughout the early periods. In the latter half of pregnancy a blood pressure below 124 mm. Hg. may be disregarded. A pressure, however, from 125 to 150 mm. Hg. needs very careful watching. A pressure over 150 mm. Hg. when the original was 120, is considered fraught with danger and needs very careful eliminative measures; and should it show a tendency to rise higher, the induction of premature labor should be considered," The modern scientific care of maternity cases, therefore includes the routine use of the manometer with a view to the recognition of the functional elevations, proven of such supreme importance.

Organic Hypertension: It would seem quite evident from the foregoing that the importance of assigning the causative condition of every case of hypertension should not be underestimated and to be able to differentiate between the functional and organic types is the *sine qua non* of success.[6] Just how are we to make this differentiation? In the first place the procedures before mentioned will aid largely in properly classifying the hypertension but after once satisfying ourselves that the condition is nto functional, what further tests or procedures are necessary to properly determine the underlying pathology. You will find first of all in the organic cases that while there is a very wide variation in the systolic pressure dropping sometimes as much as 35 mm. Hg. after one hour's rest, that the residual pressure still remains well above the normal as does also the diastolic pressure. The diastolic pressure has greater diagnostic value than the systolic pressure since in the functional cases it does not rise correspondingly with the systolic figures, or if it should it is only temporary and returns promptly to normal with rest. The systolic pressure in the organic cases show practically the same increase after exercise as in the functional cases but there is also a corresponding rise in the diastolic pressure. Both return to the pre-exercise figure much slower than in the functional cases, and strange to say in a few cases much below the pre-exercise figure. A further strange phenomenon is that in a few of these cases, where the systolic pressure is depressed below the original level, the diastolic frequently increases beyond its original pre-exercise figure. The exercise usually employed is hopping on one foot one hundred times in about 45 seconds and in the hypertension cases squatting thirty times in 45 seconds, both requiring the expenditure of about the same number of foot pounds of work.

It was until comparatively recently believed that organic hypertension meant nephritis. From the more accurate methods devised for studying kidney function, however, we are beginning to realize that hypertension does not necessarily mean nephritis. Many cases show normal kidney function and these are known as essential hypertension in contradistinction to the nephritis hypertension. This then is an important point to determine. It must be emphasized in order that proper therapeutic measures be instituted, that in every case of organic hypertension that a thorough study of kidney function be made. This means more than a mere analysis of a single specimen of urine, since albumin and an occasional hyaline cast is not an indication of disturbed renal function, and an absence of these, is not an indication of a normal kidney function. If possible the nitrogenous products of the blood should be estimated, viz., urea, non-protein nitrogen and creatinin and in addition also the blood-sugar should be quantitated. It is recognized that these tests are difficult and unpractical for the average physician, and as a substitute, and of just as much value, I would advise the following procedure. For a period of two days at least have every specimen of urine voided, saved and the specific gravity taken. In nephritis it will be noted that there is a marked tendency toward fixation of the specific gravity, usually varying not more than 7 or 8 points, and more frequently much less than this. This variation in the normal individual amounts to from 15 to 30 points between the highest and lowest levels. The phenolsulphonephthalein test has been so simplified that I believe it is available to any physician regardless of training or location.

Having once determined that the hypertension is nephritis, what is the next procedure? It has until very recently been the belief that proteins (represented largely by meats, eggs) should be excluded from the diet in cases of nephritic hypertension. It has been repeatedly demonstrated, however, by many investigators (Mosenthal, O'Hare, Allen, Christian and others) that a high protein diet has no effect whatever on the blood pressure, although its restriction does reduce the nitrogenous products in the blood if they are in excess. This has been my own observation in quite an extensive experience and would indicate the uselessness of such restrictions. That salt and fluid restrictions are necessary in practically all cases, has been my own observation for at least four years. I have now under observation a man, age 55, who for two years has not taken more than 30 ounces of water nor more than two grams of salt daily. At the beginning of this treatment his condition was desperate and even now if these quantities are increased he immediately begins to have such symptoms as dyspnoea, oedema, irregular heart action, etc., and does not eliminate beyond a certain amount of fluids. Allen[7] has recently presented some very interesting data along this same line, and it is in full agreement with my own experience. He points out one function of the kidney that we know is true, and that is that the organism must force a filtrate of water and dissolved substances through a damaged and partially blocked glomerular filter. One can quite easily demonstrate the drop in blood pressure and the relief of attendant symptoms when proper diets reduce this filtrate to a minimum. The opposite treatment under the intoxication hypothesis, through unsuitable diets, and attempts at "flushing out" entails much harm. It is quite simple to demonstrate the effect of water and salt on the blood pressure (and this has been done repeatedly) by giving a definite quantity of water at definite intervals during the day, and keeping record of the blood pressure. Or by keeping a record of the fluid intake and urinary output, day after day, until it will be seen that there is a very wide difference in the nephritic cases as compared with the normal. I would strongly recommend this procedure in all cases of nephritic hypertension, as a therapeutic measure, viz., seeing that a fluid balance is maintained. In the cases of so-called *pure* or *essential hypertension*, where there is no apparent or demonstrable disturbance of kidney function, it would seem that therapeutic success depends upon salt restriction rather than protein or fluid restriction, since it has been demonstrated by proper blood examinations and salt test diets that they are practically all a salt nephritis. To prescribe a salt free diet is not as simple as it may seem since at times both physician and patient will believe that strict abstinence from salt is being maintained when analysis will show that the blood chlorides are undiminished and the twenty-four-hour urine contains from 5 to 10 grams of salt.[7] It is necessary, therefore, at times to see that the food is prepared without salt, and foods with a normally high salt content be excluded from the diet. This single feature sometimes makes the difference between health and invalidism. Many of these patients will give a history of copious use of salt and this may be and probably is a contributing factor. I feel, therefore, that suitable chloride restriction is necessary to make these patients more comfortable, to diminish the danger of apoplexy and to possibly check the progressiveness of the disorder.[7] Naturally the best results are obtained in the earliest cases, and it is, therefore, extremely important to make free use of the sphygmomanometer, or in advance of the elevated pressure, when possible, through chemical tests to determine the quantity of blood chlorides, the chloride threshold and the amount of salt retention. An interesting observation by Allen, in this connection has been concerning ophthalmic disorder. Evidence has been gathered indicating that many cases of retinitis are due chiefly or solely to chlorides and are benefited by chloride restriction.

A resume of the foregoing would indicate that our ideas in the past concerning blood pressure have very largely been wrong and that such changes naturally warrant a change in our treatment.[8] It is not necessary or advisable for one to give up his business entirely and lead a life of invalidism. The individual needs must be studied and the patient taught to lead a life of temperance in all things, avoid psychic or mental disturbances, such as worry, excitement or great mental activity. The question of exercise demands some especial consideration. Certainly extremes of exertion are contraindicated, but well planned, moderate exercise is not only harmless but is beneficial and even in many cases reduces blood pressure below its pre-exercise level. The average man or woman at or past middle age lead too sedentary lives. Of all exercises nothing is better than walking or golf. The degree of exercise will, of course, depend upon the severity of the case, and the best sign of over-exertion is the sense of fatigue and dyspnoea which the patient himself experiences. This should always be avoided. To teach our patient to lead such a life is difficult enough in those of means, but what are we to do about the laboring man, who must do hard labor eight hours daily to support his family, or the mother who must do the scrubbing and cleaning for a large family and climb many stairs of a tenement several times daily, and many others in various walks of life, who would find it practically impossible to carry out the treatment above outlined. I see but one answer. These people are human beings with the right to live and are necessary and important spokes in the big wheel of industry. The necessary adjustments in the mode of living and the provision of new and suitable occupations as well as medical care, are conditions that should and in the future probably will obtain through social service agencies.

Finally we must recognize the great variability of blood pressure reading in both health and disease, and be slow to attribute therapeutic results to some drug until the great benefits of rest both mental and physical, diet, etc., have been thoroughly considered. Quoting from Allen[7]: "Clinical facts that have been collected, warrant urging that unfounded theories be discarded, the widespread abuse of drugs, particularly nitrites and iodides, stopped and the possibilities of modern laboratory methods utilized for the guidance of treatment."

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Paratyphoid in Infants.—In Blechmann's two cases, intense diarrhea was the predominant symptom at first. Then came meningitic symptoms, compelling lumbar puncture, the ninth or tenth day. The infants recovered after a twenty-two or twenty-four day course. The fever curve was like that in adults. Agglutination tests were positive with paratyphoid B bacilli and these alone.

NASOPHARYNGEAL FIBROIDS TREATED WITH RADIUM: CASE REPORT.*

By Samuel G. Dabney, Louisville.

The gentlemen who are engaged in the practice of general surgery, as well as those who do nose and throat surgery, are probably familiar with the so-called fibroids in the nasopharynx occurring chiefly in boys between the ages of ten and sixteen years. The books describe these tumors as clinically malignant though pathologically benign. They are among the most troublesome affections with which we have to deal. Hemorrhage is the chief danger, and deaths from this cause are not uncommon. I believe there has been one such death in Louisville during the last year.

A boy was brought to my office five or six months ago by his physician and his older brother. I use the term "brought" to me advisedly, because he was almost carried from the elevator to my waiting room. He was so weak he could scarcely stand and had to be laid on the sofa. He was extremely pale, looked desperately ill, and was the most exsanguinated person I have ever seen going about.

The history of the case was that for many months, perhaps for a year or two, there had been a great deal of obstruction in this boy's nose. He had consulted several physicians and had been operated upon twice. He had lost at the time of each operation a tremendous amount of blood. That was about all the history I could obtain. I was then shown a letter written by the doctor who had operated upon him to his home physician who was with him. The doctor said he was sorry to have to relinquish the case, but the boy would be in imminent danger of dying on the table from hemorrhage and it would be hopeless to attempt further operative procedures because the disease was malignant.

I told the physician who was with him and the brother that, in my opinion, owing to the boy's physical condition, it would be utterly impossible for him to undergo any further surgery, but if he cared to go to the hospital for a while for observation we would see if anything could be done later for his relief. I suggested further that under the circumstances it might be well to have a general surgeon see him. The physician who came with the patient agreed to this, and we asked Dr. Irvin Abell to see the patient at the hospital. Dr. Abell agreed that the boy was not in an operable condition at that time.

At this juncture the suggestion was made, but by whom I do not now recall, that the Roentgen-ray or radium might help. I was willing to adopt this suggestion and asked the physician to discuss the matter with Dr. D. Y. Keith. We then proceeded to complete the diagnosis, though in my mind there was little doubt about it. After allowing the patient to rest for three or four days a small piece of tissue was excised for microscopical examination. Looking backward over the case I believe I made a mistake in doing this. I should have assumed it was a fibroid. The clinical history and appearance were so typical that the diagnosis should have been apparent. One thing I did not do, because the boy was so weak that I did not want to subject him to any more examination than was absolutely necessary, I did not put my finger in his nasopharynx to feel the growth. Had this been done the diagnosis would have been assured. I merely snipped off a small piece of tissue which on microscopic examination was pronounced fibroid. Looking backward now I believe that procedure was needless because I was perfectly warranted in making the diagnosis clinically rather than microscopically of fibroid, and this would have saved the boy this small operation of removing a piece of tissue, which I may say was followed by another tremendous hemorrhage.

After consultation Dr. Keith said he would like to try radium. The family physician went home, but the boy's brother remained with him for a few days and he also left. Dr. Keith applied radium through the nose, using a tube as I recall the procedure, inserting it into the growth through the anterior nares. That afternoon the information was given me over the telephone that the boy's temperature had suddenly risen to 105½° F. However, within a few hours the temperature receded to normal. I believe the boy returned to his home after four or five days.

About six weeks later Dr. Keith telephoned that the boy was coming to the city and asked if I would like to see him. Much to my surprise the boy walked into my office and seemed to be in splendid physical condition. Two months before he had to be carried on account of extreme weakness. The point I want to make is that practically the boy was cured by the application of radium; at any rate the growth has almost disappeared, his color has been restored, he is able to walk about and feels well. Examination of the nasopharynx showed a small mass remaining and I believe Dr. Keith expects to make another application of radium. So far as I am aware this is the only case of fibroid of the nasopharynx which has been treated with radium.

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*Clinical Report before the Louisville Medico-Chirurgical Society

The first case of nasopharyngeal fibroid that I ever saw was in the person of a child, a son of an employe of the old Louisville City Hospital. The patient was seen by the late Dr. J. M. Ray and several others. I was young in practice then and much to my gratification the boy was taken to the late Dr. Wm. Cheatham under whose treatment death occurred presumably from hemorrhage. I am glad that I have seen very few of these cases since then. Fatality usually results from hemorrhage.

Another form of growth in the nasopharynx is known as fibromyxoma, but this is an entirely different thing. A fibromyxoma can be readily removed by means of a snare. Such growths are much more common and far less severe. They can be successfully removed without much hemorrhage.

Genuine fibroid tumors of the nasopharynx occur almost always in boys between ten and sixteen years of age. There is a tendency of the tumor to atrophy if the patient can be tided over until he is twenty-two or twenty-three. These cases are very dangerous and the one reported was typical. And while, of course, one swallow does not make a summer, yet when it comes it causes us to think of summer, and the result in this case made me think a great deal of radium in the treatment of fibroids of the nasopharynx.

DISCUSSION:

Wm. J. Young: I have never had the opportunity of treating a fibroma of the nasopharynx with radium, but have treated a few cases of polypi in the same situation with excellent results. We use radium to resolve hypertrophied tissues, and I do not know why fibroma of the nasopharynx should not respond to treatment just as well as fibroid of the uterus.

We know that in fibroid or polypoid growths of the uterus radium causes retraction and resolution of the abnormal tissue, and I see no reason why this should not also occur in the nasopharynx. The case reported by Dr. Dabney is most interesting. It is the first case of fibroma of the nasopharynx treated with radium so far as my information extends.

In regard to fever after the application of radium: We know that in the treatment of lymphosarcoma or in fact any other type of sarcoma by means of radium there is usually quite a high fever; but in carcinoma and benign growths it is rather unusual.

J. R. Peabody: The case reported by Dr. Dabney was outlined briefly before another medical society recently by Dr. Keith. I was very much interested in the details. Fortunately fibroid tumors of the nasopharynx are rare. I have never seen such a case. I recall one case under observation at the Louisville City Hospital where it was a question whether the tumor was fibroid or polyp. The growth was removed without hemorrhage so of course it was not a fibroma.

There is an illustration in several of our nose and throat text books of a condition known as "frog-face," the subject being a colored girl where the naso-pharyngeal growth was so extensive as to cause exophthalmos. There was considerable displacement of the bones in the race.

Fibroma of the nasopharynx has always been considered very serious. I hope something can be done by radium applications as stated by Dr. Dabney.

S. G. Dabney (closing): I was a little surprised to hear Dr. Young speak of having used radium in the treatment of polypi of the nasopharynx. Nasopharyngeal polypi are rather common and I have never heard of radium being used in treating them. Polypi of the nasopharynx may be nasal or antral in origin. Contrary to polypi of the nose they are apt to be single, but may be multiple and may recur. The generally accepted theory is that they originate in the antrum and extend to the nose and nasopharynx. They may attain great size; I have removed them as large as an English walnut. Most of the nasal polypi arise from the ethmoid and those of us who are familiar with the subjects know how difficult it is to completely eventrate the ethmoid. and possibly it may be a good suggestion to use radium after the removal of a nasal polyp, that is it may be of advantage in preventing a return of the polyp.

Unusual Paroxysmal Tachycardia.—Smith reports the case of a woman, about 55, who complained of repeated and often prolonged attacks of very rapid heart action which began about eight years ago. They sometimes continued for weeks. They were accompanied by dyspnea, but not by pain. They began and ended abruptly. An arterial pulse tracing showed a number of short periods of rhythmal tachycardia, interspersed by a few normal beats mixed with extra systoles. In Smith's opinion the case is unusual in that it shows such a variability in the same indivdual, and that it must be differentiated from auricular fibrillation.

Leg Ulcers.—Nejrotti regards the varicose ulcer as a trophoneurotic lesion secondary to disturbance in the circulation. Treatment should aim to restore normal circulation, and he agrees with those who claim that a bandage exerting even pressure over the entire leg is the best of all measures for this. The leg is wound from the roots of the toes to the lower half of the thigh, and the bandage is renewed every five to ten days. The fact that the patient is up and about as usual is a further advantage.

THE NEW INTENSIVE DEEP ROENTGEN THERAPY AND ITS APPLICATION IN THE TREATMENT OF CANCER.*

By J. Henry Schroeder, Cincinnati, Ohio.

You have honored me with an invitation to discuss before you the subject of the new intensive deep Roentgen therapy in which I am very much interested. Since my return from the European clinics I have, on several occasions, spoken of my observation pertaining to this important branch of therapy, and of the results that have been accomplished abroad. It is gratifying to me that tonight I may add to my observations the result of my own practical experience in the application of these treatments.

You are well aware that ever since the discovery of the Roentgen-rays, and as soon as their effect upon living tissue was recognized efforts have been made to use the rays in the treatment of certain diseases. This endeavor was only successful in a very limited field, and the hindrance to greater applicability lay not so much in the character of the rays as in the want of technical knowledge on the part of those who would use them.

In the light of what has since been accomplished it is astonishing that we were content to follow for years some vague method of application of Roentgen-rays; that no effort was made to understand so well defined an agency to the end that it might be applied with precision to deep seated tissues. We must give credit to the investigators abroad, who, by their untiring devotion to the solution of the problem have demonstrated the technique by which Roentgen-rays may be used with the precision of the surgeon's knife.

Their physicists and engineers built apparatus suitable for the clinics that produced rays of greatly increased penetrating power and intensity, and thereby clinicians were given the means to apply Roentgen-rays according to the technique which they had evolved. It was an American, Dr. Coolidge, who gave us the essential requisite for the most far-reaching application of the new Roentgen-ray technique, namely, the electron tube. It surpasses any tube I saw used abroad. Thus we have been enabled through the accurate scientific investigations of physicists and clinicians, and through the skill of Roentgen engineers, to approach the deep therapeutic application of Roentgen-rays with understanding and definite purpose.

The long delayed reports of attainments by this technique came to us coupled with reports of the success achieved in the treatment of deep seated cancer, and thus at once aroused popular interest.

The physicians will have to bear, in a large measure, the responsibility of making this new intensive deep Roentgen therapy available to the patients, or to counsel against its use, as their judgment and conscience may determine. It is, therefore, a prerequisite that the physician himself have a clear comprehension of what is being offered.

Let me therefore present to you in clinical terms the present scientific method of the application of the Roentgen-rays to deeper tissues and their effect.

THE "PRACTICALLY HOMOGENOUS RAYS" OF DESSAUER.

The Ronetgen-rays, as they issue from the tube, represent a crude drug. For the purpose of deep therapy this crude drug is refined by passing it through filters of heavy metals. The filtrate is composed of only such parts of the original mixture of rays as will pass through the superficial layers of tissues without causing a severe inflammation or necrosis.

If we consider as the source of the crude Roentgen-ray bundle, the apparatus with which we have until now been working; that is, an apparatus operating with a maximum of approximately 125,000 volts, we find that the filtrate is exceedingly poor in rays that are capable of penetrating any great distance into deep tissues. The first requisite was, therefore, to generate rays of greater penetrating power and in larger quantities. In accordance with the laws of physics, the intensity of the penetrating rays, and the penetrating power of Roentgen-rays, increase directly with the voltage that is applied to the tube. Therefore, Roentgen apparatus was designed capable of providing over 200,000 volts maximum, and such apparatus is used in the production of Roentgen-rays for deep therapy. When the output of crude rays from the new tube operated by this machine is filtered through heavy metals it is found that the filtrate is very rich in rays of very great penetrating power. Because of their so-called hardness they are only subject to a slight absorption by the superficial tissues, so that a maximum amount reaches the deeper tissues. Thus the first problem was solved: *To produce rays that can reach deep tissues in sufficient quantities to produce an effect.*

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*An address delivered by invitation before the Campbell-Kenton County Medical Society, Covington.

THE QUANTITATIVE MEASUREMENT OF THE DOSE OF ROENTGEN RADIATION.

The second problem consisted of the measurement of the quantity of Roentgen radiation that reaches the deeper tissues; in other words, *the measurement of the dose of radiation.*

The clinical object of the action of Roentgen-rays upon deep tissues is always definite, and is based upon the action of the rays upon living tissues in general. It may be an irritating or stimulating effect that is desired, or it may be cell destruction. That Roentgen rays produce either effect is a matter of every day observation; it depends merely upon the quantity of radiation absorbed by tissue, and to some extent upon the character of the particular tissue. Deep Roentgen therapy requires that the definite effect be produced at will, and therefore exact measurement of the radiation dose is a fundamental requirement. There is only one way of measuring the quantity of radiation energy, namely by the degree of ironization produced in an air chamber in which the Roentgen rays are absorbed.

In its simplest application this apparatus consists of a small air chamber connected with an electrometer and introduced into a body cavity, for instance into the vagina against the cervix uteri, if the adjoining region is to be radiated. The Roentgen-rays are then allowed to fall upon the surface of the abdomen and to pass through the tissues to the uterus and the air chamber in position. The electrometer connected with the air chamber registers the quantity of radiation that acts upon the chamber and adjoining parts. The amount of radiation required to produce the desired effect having been previously determined, it is necessary to bring this quantity in its entirity to act upon the deep tissue in question.

THERAPEUTIC APPLICATION.

Having now come to know the tools with which we work, let us turn to their application as therapuetic agents. Deep Roentgen therapy is based upon the biologic effect of the Roentgen-ray, and its so-called selective action upon different tissues. This selective action is due to a varying suspectibility of different tissues to the action of the rays. Some tissues, such as glandular organs, are very susceptible to their action; much more so than, for instance, the skin. Some neoplasms, for example, myomata, show comparatively small resistance. Sarcomatous tissues as a rule is more susceptible than the skin, while carcinomatous tissue is perhaps least susceptible among the neoplasms. If then in a mass of tissue there were found cells of lesser resistance, together with those of greater resistance, the selective action of a sufficient dose of Roentgen radiation would cause the more susceptible cells to be destroyed, and if the dose were not increased, the cells of greater resistance would recover. Therefore, Roentgen-rays may pass through the tissues of the abdomen and destroy the ovarian cells without having any effect upon the surrounding tissues.

For practical purposes the susceptibility of tissue cells is usually compared with the resistance of the skin. It may be said that the dose of Roentgen radiation that produces an erythema or mild inflammation of the skin is 100 units. It will always be 100 units for the skin under identical conditions. I have already stated that cancer cells have at least as much resistance as the cells of the skin, and that brings forward at once the problem of the therapist: The purpose to destroy cancer cells that are situated perhaps 10 cm. below the surface of the skin, when the rays must first pass through the skin which must not be destroyed. It is clear that it must be determined before the treatment whether 100 per cent of the radiation dose upon the skin surface can be delivered to the seat of the disease 10 cm. below the surface. On account of the distance between surface and depth, and in conformity to the laws of light, there is a definitely lessened intensity in the deeper tissues as compared with the surface. Furthermore, there is a definite amount of absorption of radiation in the overlying layers of tissue, so that only a certain percentage of the surface dose reaches the deeper layers. It is very important to remember that this radiation dose at a given depth in the tissues cannot be calculated from the surface dose on the basis of "dispersion" by distance from surface to depth, nor on the basis of the known absorption co-efficient. The effective radiation depth dose is the quantity of total radiation measured at a given depth, including the scattered primary rays and such secondary rays as are generated in the tissues. If the surface intensity has been measured with the ionization chamber already described, and the intensity in the deeper tissue has likewise been measured in the same manner, as described, the dose that remains in the deeper tissue, after the skin has received 100 units, is exactly known. If, for instance, when the skin has received its limit of tolerance, 100 units, and at a depth of 10 cm. we have measured 65% of the surface units, and 100 units depth dose be required, it is clear that at least 35% must be administered to the deeper tissues through another skin area. If the deep cancer cells do not receive the equal of 100 skin units or more, they will not be destroyed, and the treatment is useless.

It is at once apparent that the dosimetric apparatus, that is the ironization chamber (the *Jontoquantimeter*) embodies the fundamental principle in the technique of deep Roentgen radiation.

By its use alone we determine the value of any therapeutic Roentgen apparatus; by its use we determine the most advantageous filter, and by its use we determine every dose administered. This dosimetric apparatus has made possible the placing of deep Roentgen therapy upon a scientific basis, and through its use have been obtained the remarkable results in deep Roentgen therapy, particularly in the treatment of malignant diseases, in the clinics in Europe. To attempt deep Roentgen radiation without it is the same as if a blind surgeon were to attempt to perform a surgical operation.

When applying these principles of deep Roentgen therapy to the treatment of deep seated cancer we must, because of the clinical aspects of the disease, emphasize certain facts that pertain in general to the biologic effects of Roentgen radiation.

1. The complete cancer dose must be administered to the diseased tissue in as near to one treatment as possible. If fractional doses are given the effect of the sum total of the fractions is not the same as the complete dose given at one time; on account of the partial recovery of the cells between treatments, and for other reasons, there cannot be an effective 100 per cent dose given in fractions with great intervals. The patient is at a disadvantage, and the disease does not permit much latitude.

2. If cancer cells are not destroyed, that is, if the dosage is insufficient, they will recover from the radiation. If the dose is less than 40 per cent of the required dose, the cancer may be stimulated to flourishing growth.

3. If too large a dose is administered to the cancerous area, the adjoining tissue may become necrotic. This is of particular importance in view of the fact that cancer cells require large doses, and through improper technique a necrosis of internal organs, such as the intestine, may be produced while the skin is left intact!

4. In order to administer a complete Roentgen radiation cancer dose, it may require from two to eight hours of constant radiation, varying with the parts involved.

If the patient's condition does not prohibit it, I make practice to give the entire dose in one region in one treatment. When following my technique, and that is the same as I observed in the clinics in Europe where this work was originated, I am able to subject a patient from four to six hours of continuous Roentgen radiation with remarkably little after effects.

5. There is a certain effect upon the blood as a result of the radiation. As a rule, after the first week the blood begins to regain its former character. In patients who are already cachectic, and in such the prognosis is always unfavorable, the blood may continue to deteriorate. It is claimed by Wintz, of Erlangen, that the inability of the blood forming organs to recover is one of the chief reasons why Roentgen radiations for cancer are sometimes of no avail.

It is likely that there are other vital factors concerned in the care of cancer by Roentgen radiation than the biologic effect of the ray itself. All that continues to the maintenance of good general health is undoubtedly essential. Thus it has been observed that patients who are anemic from hemorrhage and whose conditions appeared hopeless, have recovered with a complete disappearance of the local cancer when a blood transfusion was given after the radiation.

If a full carcinoma dose has been given it need not be repeated in less than six or eight weeks. The tissue reactions are not completed in less than that time.

THE PRESENT CLINICAL STATUS OF DEEP ROENTGEN THERAPY.

So far as the present clinical status of deep Roentgen therapy, as applied in the treatment of cancer, is concerned, one can only speak of its status in Europe, because we are only now beginning to practice it. A department of deep Roentgen therapy is part of every well organized hospital in Germany.

In the university clinics in Erlanger and Frieburg, where most of the original work has been done, no surgical operations for cancer of the uterus and pelvic organs have been done since 1916. All cases are treated by Roentgen radiation, some time in connection with small doses of radium. The results are better than they ever were after surgical operations exclusively. In some clinics they prefer to operate upon operable cases of cancer, but always in conjunction with prophylactic Roentgen radiation as part of the treatment. From four to eight machines are in operation eight hours a day or more in the various clinics. The most favorable cases are cancer of the uterus and pelvic organs, and in Berlin they are treating with splendid enduring results cancer of the breast by Roentgen radiation alone. I have seen as the immediate result the disappearance of cancerous growths from various parts of the body, and the statistics in the German clinics show a very encouraging percentage without recurrence after five years since radiation treatment.

Apparatus has recently become available in this country that even surpass those in use in German clinics. The demands that are made upon apparatus are such that the only criterion is its capacity to deliver an acceptable quantity of the most penetrating rays from the tube, and it must do that continuously for six or eight hours each day. The technical problem involved in the proper construction is intricate and only the most experienced engineers should be entrusted with it.

From my description of the therapy technique it will have become apparent that much more is required than machinery. I would call attention to the fact that in Europe this work is not done by what has become known here as roentgenologists, but by clinicians who have become especially trained in this work. Above all untiring devotion to the work is required. Roentgen therapy can never become an incident in the roentgenographers busy day, but must be his chief endeavor.

After observing the results of Roentgen therapy in Europe I have during the past three months had an opportunity to observe the immediate results from my personal application of the European technique, and I have seen some astonishing effects. I want to be careful to say that I do not speak of final results; these can only be determined during the years to come. In the first place, I have seen very little of the so-called radiation sickness that is probably of a toxic nature. I have seen no undesirable after effects. I have seen the most remarkable immediate relief from physical suffering in patients afflicted with cancer, when the location was such as to produce much suffering. I have had some of these cases examined by their physicians, and they have reported a corresponding improvement in the local condition. By the accurate usage of the dosimetric apparatus I have been able to so completely regulate dosage that I have not had to produce a noticeable skin reaction in any patient, while I have promptly seen the manifestations of a full dose on part of the internal organs.

The nature of malignant diseases is such that one speaks with a great deal of critical hesitation about final results of deep Roentgen therapy. I refrain from describing even the immediate results that I have obtained, and that were reported to me by competent medical observers, because from past experiences it would be difficult to credit them unless they have been personally observed. Let me only say that the gratefulness of those afflicted, who have had the benefit of the newer Roentgen therapy, becomes the strongest encouragement in the work.

COUNTY HEALTH DEPARTMENT ANTI-TYPHOID INOCULATION ACTIVITIES.*

By Wm. N. Lipscomb, Georgetown.
Director Soctt County Health Department.

We are all familiar with the causes, the symptoms, the treatment, and what is more important the prevention of typhoid fever, yet we are still students and will be until complete fossilation sets in and we are displaced. However, we may say this as a major premise: that typhoid as a disease is rapidly disappearing from the records of American mortality. It is then a preventable disease and will be a vanishing disease in direct ratio to the efforts expended primarily along the lines of sanitation for that must ever be kept before the mind of the profession and public as an everlasting "pillar of cloud by day and fire by night"; secondarily, typhoid prophylaxis is one of wholesale and repeated inoculation. Sanitation must never be lost sight of even though it be a question of patient years to develop the idea and obtain the particular millenium sought for; however, we are a nomadic race, a restless people, always on the move, a people who think little of sanitation except in that particular circumscribed spot one may call home, and even there we grow careless; reversion to the primitive is all too easy for we are young as a nation, and dealing constantly, too, with an influx from Europe, a great percentage of which regards a bath as a crime, and a sanitary toilet the illusion of a dreamer. What wonder then that some other measure has to be resorted to while we seek that goal which advanced sanitary science sets before our eyes, our imagination and our common sense American practicality.

This measure is anti-typhoid inoculation. Before discussing it from the standpoint of a Kentucky Health Department let us go further afield; even before doing that pause for a moment to consider the economic loss from a single preventable disease, a loss so great as to cause amazement to the student delving into the subject.

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*Read before the Scott County Medical Society.

Typhoid fever in the United States is a multiple paradox, a disease in which the public is fairly well educated and almost totally indifferent save when an epidemic begins to blot out acommunity then it becomes hysterical. A more wholesome fear is needed to more effectively combat it. Typhoid fever, even as an epidemic of a few cases, is a reproach to the sanitation and civilization of any locality which year by year allows typhoid producing conditions to exist; again its prevalence compared to some other countries is by no means flattering to our national pride, though we are fast improving, and last but by no means least, it is one of the most expensive of diseases.

When we consider the cost of this preventable malady, one of the "Captains of the Men of Death" figures as they roll up almost stagger our imagination, almost make us doubt our own balance sheets. We know that the annual death rate is from thirty-five thousand to forty thousand per year, this toll taken from those in the most productive period of life for the most part, eighteen to forty-five. The economic loss from this alone is enormous. We know, too, that in this country alone typhoid incapacitates about three hundred thousand each year, perhaps more. Just a few examples alone are sufficient evidence along this line.

Johnson, in the Journal of the American Water Works Association, Vol. 3, No. 2, June, 1916, comments as follows:

"To give for each human life lost through typhoid fever an average value of $3,600, and for lost wages and medical attendance $200 per case, the present annual typhoid toll in the United States amounts to $130,000,000. It would seem that the influence of depleted vitality in the case of typhoid convalescents, resulting in earlier deaths from other causes, and depreciation of usefulness through the remaining years of life should be given some expression of money value, and if for this at least $75 is allowed for each case, the final result is $150,000,000, as represented in terms of dissipated vital capital the annual loss paid by citizens of the United States."

In army circles we have further proof of the expense and wholesale crippling of typhoid epidemics. In two wars this disease effected more casualties than bullets. The Spanish-American War is an example. Our troops numbered 147,765, and of this number 20,926 cases occurred with 2,192 deaths during an eight months' period. This shows an incidence rate of one man in seven a victim and a death rate of about ten per cent of those afflicted. In the Boer War there were about 31,000 cases in the British Army with 5,887 deaths. Again we swing back to civil life. Witness in New Haven, Conn., in 1919 an epidemic of seventy-seven cases at an estimated cost of $29,000. The epidemic at Salem, Ohio, last fall was expensive.. The citizens raised $52,000 for relief; in addition the Red Cross appropriated $70,000 and supplied fifty-eight nurses. This expense of $122,000 does not include that to the U. S. Public Health Service, the state, and other contributing agencies, nor does it include the economic loss from disability and death.

These figures are a challenge to the pride of a nation, to the efficiency of health service, but more to the indifference and ignorance of a people. Rosenau, in his work, "Preventive Medicine and Hygiene," a book no health officer should be without, further challenges all concerned in this terse sentence: "For the whole United States the number of cases each year readily preventable by methods within our grasp would probably total about 16,000." The efforts of health authorities are not always appreciated nor their advice taken and Rosenau evidently bears this in mind, at any rate he does not blandly state that a 100% reduction might be accomplished. For instance, in Cleveland many people restored springs which were closed by the health department, knowing the dangers, and in the case of one spring the addition of a constant flow of road oil, in sufficient amounts to give it marked odor and taste, seemed only to stimulate the desires of the users. This item of the perversity at times of the human animal comes from Perkins, Cleveland Division of Health, Public Health Reports, May 20, 1921.

We must remember, too, that in Kentucky most of the typhoid comes from rural communities, many far removed from doctors, druggists, hospitals and visiting nurse staffs; must remember, too, as we all know, that in many cases the family concerned as well as the patient can ill afford the disease, and must ever bear in mind our obligation along the lines of preventive medicine. Be it said here that the medical profession is unique and alone almost in its unselfishness in that it sets every other occupation and profession the staggering example of one seeking voluntarily to destroy itself and likewise taking the public more and more into the inner chambers of its confidence. Speaking of typhoid reduction, sixty-eight of the larger cities show a remarkable decrease in the incidence and death rate of the disease. This, however, is easily apparent. Sanitation is more readily obtainable with a highly organized, well conducted municipal organization working hand in glove with a trained health department personnel. In the cities the thing is done by organization; in the rural districts affairs like sanitation are on more of a purely individualistic basis, one in which the landlord tenant relation is often a complicating hindrance.

In one of the pamphlets issued by a biological house is found the following:

"At this time especially does it seem to be the duty of the physician to advise the inoculation of his patients. With summer vacations the incidence of typhoid fever always rises. Individuals who have been living in communities where their hygienic surroundings have given them little chance to become infected visit remote country places where the water and milk are under no sanitary control and flies are undisturbed, or they spend their vacations in the large summer hotel where both servants and guests have been recruited from all sorts of places. There is likely to be a "Typhoid Mary" in every summer hotel. Of course, the danger of intestinal infection is always greater in summer. In any case the "stay-at-homes" are by no means free from this menace. We know from the investigations made in the army that the percentage of typhoid carriers is much larger than has heretofore been suspected." While this quotation is admittedly from an advertisement, it partakes so much of the living truth that it is unhesitatingly made use of here.

Typhoid vaccine really needs no brief. Its effectiveness has been demonstrated so well that practically all armies now use it except that of Germany, which has long ceased to count in anything.

The use of the vaccine has passed the experimental stage, can no longer be accused of being a chimerical dream, or as merely a panacea merely recommended by biological houses as something to sell. State boards are furnishing it as in Kentucky and have sanctioned its use by recommending it broadcast in infected states of which there are no exceptions to the writer's knowledge. Unqualified statements in such instances should be backed up with figures. In Massachusetts hositals 1,381 nurses and hospital attendants were immunized; all of you know what possiblities there are under such conditions, yet only two developed the disease; without immunization the incidence was nine times greater. In the Japanese army in 1909, 24,795 were inoculated against the disease. Later reports showed one case to one thousand for those so immunized, the result probably of massive infection or inadequate inoculation or both. To return for a moment to civil life. In a girls' school near Cleveland (Journal A. M. A., April 19, 1921) a typhoid epidemic occurred in the winter of 1919-20. About half the girls consented to inoculation. A second outbreak of typhoid occurred later. Not one case occurred among the girls so immunized. The epidemic at Salem was disastrous as we all remember. After the fires of disease had died away we find this report issued by Dr. C. B. Cornell, Director Civilian Relief, Lake Division, American Red Cross: "The percentage of sickness rates for men of draft age was only one-half the normal rate, due to the fact that of the 350 men in Salem who had been in service, only three of whom became ill with typhoid."

"The health record established by the maneuver division of the U. S. Army at San Antonio, Texas, during the summer of 1911," states Rosenau, "is a triumph in preventive medicine." He goes into detail as follows: "The division had a mean strength of 12,801 men. All were treated with the typhoid vaccines. The result was that from March 10th to July 10th only two cases of typhoid fever developed no deaths. One patient was a private of the hospital corps who had not completed his immunization, having taken only two doses. His case was very mild and probably would have been overlooked but for the rule that blood cultures were made in all cases of fever of forty-eight hours duration. The other case was a teamster who had not been inoculated. Among the 12,801 men there were only eleven deaths from all diseases. Typhoid fever prevailed at the time in the neighborhood, thus there were forty-nine cases of typhoid fever with nineteen deaths in the city of San Antonio during this period. This contrasts markedly with the typhoid record of the U. S. Army during the Spanish-American War when the typhoid record of a division of volunteer troops camped at Jacksonville, Fla., in 1898, under conditions similar to those at San Antonio was as follows; the division at Jacksonville had 2,693 cases with 248 deaths which was about the average typhoid incidence of the camps."

Desiring to quote only recognized authorities to you, I recently wrote the office of the Surgeon General, U. S. Army, for an opinion on the use and results of typhoid fever vaccine in the army. Lieut.-Col. S. J. Morris kindly gave the following:

"The Surgeon General directs me to reply to your letter of recent date and to inform you that anti-typhoid inoculation is regarded as one of the great achievements of preventive medicine. Should the day ever come that this is used throughout the United States by the civil population in the same way as it is used in the army, typhoid fever will disappear from this country as yellow fever has already done.

"During the World War period (1917-1919 inclusive), including the period of mobilization and demobilization, there were 1,532 cases and 227 deaths from typhoid fever. These cases occurred among practically 4,000,000 vaccinated men. A certain number of these cases developed shortly after the man entered the army prior to the completion of the three doses of the vaccine and some can probably be attributed to incomplete vaccination as troops were shifted frequently before the three doses had been given, though it is believed these were small factors and need not be considered. This means that only 0.038% of the men vaccinated subsequently developed typhoid fever. If the admission rate had been the same as during the Spanish-American War, which occurred prior to the use of vaccines, there would have been 291,637 cases, with 30,916 deaths. Had this occurred every bed which the American army had in its hospitals in France would have been needed to care for the typhoid cases alone.

"Recent reports of the Metropolitan Life Insurance Company and several state and city boards of health indicate that the civil typhoid rate among males are now reflecting the benefits of the extensive army vaccination program."

Rosenau sums up thoroughly the whole question in a few sentences. He states:

"The results of typhoid inoculations can no longer be questioned. The morbidity is lowered in those who have been properly vaccinated. The most striking effect is in the lowering of the mortality. Preventive typhoid inoculations involve no risk whatever and are especially applicable to those unduly exposed to the infection, such as nurses, hospital attendants, physicians, travelers, soldiers in camps, persons in epidemic localities, and persons in the family of a bacillus carrier. The method has been proposed for general use among the public in endemic foci, but it is a question whether this artificial method of acquiring immunity would serve as good a purpose in the end as fighting the disease along the lines of general sanitation which has been so successfully done in many European centers. It would certainly be a mistake to immunize the population with this artificial method to the neglect of general sanitary improvements, such as good water, clean milk, fly suppression, cleanliness, and personal hygiene. Because a person has received the protection afforded by typhoid inoculation is no reason to disregard other prophylactic measures."

When I took charge of the work in Scott County on October 1, 1920, as director of the Full Time Health Department unit there, the records showed that some inoculations had been done to the number of 121. This meant that approximately forty people had been immunized. Having been an early pioneer, so to speak, as a volunteer in taking the inoculation about the time its use was urged. I have always been interested in this phase of preventive medicine. The fact of the matter was that I came to the Kentucky field as rather an enthusiast, though finding it of somewhat urgent necessity to correlate this activity with about thirty others; hence to properly balance an organization program it was essential that the time element be prorated. This meant that nothing like full time could be given to this one endeavor. However I began activities early in October.

The first community we worked in was one about twelve miles from headquarters, where a few cases had been recently reported with proof that here, too, was a rather chronic endemic foci itself. This combined situation made an excellent nucleus for work; the appeal to a community to help save itself, the bringing of actual evidence to convince of the need being made. The Supervising Nurse of the department, Miss Florence Besley, visited this community in line with our program of medical inspection of schools and introduced the typhoid propaganda through this medium. We received a favorable reaction from the teachers and children and also from the parents as we were making at the time a home sanitation survey. One or two ex-service men were valuable assistants. A few days later we held a public meeting in the schoolhouse, both of us making addresses. The minister who was holding a revival spoke on the subject from the pulpit and the two teachers did excellent work. Not quite a week later we did the first inoculation for sixty-eight volunteers, adding eleven more at the time we gave the second. This total work dating from the first inoculation required four trips; in other words, we really run two sets of people. The second inoculation has always seen extra volunteers because many people hang back to see how many funerals will occur before offering themselves. The defect of this method lies in the fact that four trips are necessary to complete instead of the regulation three; the efficiency lies in increasing the number of immunized persons in any given locality.

The next area of operations was a negro settlement. At that time, Nov., 1920, there was a case of typhoid fever reported and many of the foregoing tactics were used. I also spoke at a Sunday service in the church. The main problem was that of inoculating a fear of typhoid infection and at the same time abating the typical fear of the hypodermic needle usually present in those of African descent. We were able to secure 35 children and parents for the series. In April another case of typhoid was reported in this community. Following a church lecture the nurses made a house to house canvass. As a result of these efforts we immunized 59 people. We did this work at seven in the evening as most of the men were working during the day ringing the bell for the service at the church.

Another example, somewhat different from those preceding was that of Georgetown College where we took up the question of rendering such service to the students. Our most effective ally here was the Professor of Biology and Athletic Coach, Mr. Hinton, who took charge of the campaign. Following his leadership 82 students were inoculated, mostly men.

The technique is as follows: I use a 5 c. c. and 10 c. c. Luer syringe adapted to slip-on needles. Sterilization is done in a small pan of water over an alcohol lamp, the best type of lamp being that of the canned heat variety as it is cheap and convenient. While I am filling one syringe the nurse prepares the arms of several patients by painting with Iodine an area about the size of a quarter. She then fills the other syringe while I am inoculating the patients prepared. Six needles are required for any given schedule. arranging them in a circle, using a pair of hemostatic forceps to change in rotation. This means that five needles are boiling while one is in use. Of course one has to be careful not to put the needles on when too hot. I have broken one or two syringes in this way. Waving the needle through the air two or three times in a short arc will take care of this and no time is lost. As soon as one syringe is exhausted it is exchanged for the one already filled. Alternating the syringes in this way is a great time saver. As fast as the inoculation is made the nurse sweeps the area of operation with an alcohol sponge. By this time another group have had their arms prepared with iodine and the work goes smoothly on. Experience has shown that a doctor and nurse can do the work in less than half the time than either can do it alone. Using the method outlined above we inoculated 82 college students one afternoon in one hour and five minutes, this including time required for sterilization. A third person, usually a teacher, is used to take down the names of the "victims of the needle."

As to the location it is preferable to use a small room, admitting a few at a time. When too many are lined up watching the others both the constant sight of the needle and the psychic influences have a tendency to produce syncope. This point is well to bear in mind as a few unconscious forms on the floor may paralyze or inhibit the entire work in a community.

Dosage: The amount required for an adult male of about 160 pounds is about one-half c. c. for the first inoculation, about one-half billion killed bacteria, and one c. c. for each of the two following, slightly less for a woman and proportioned down for children according to weight not age. I have not as yet taken the responsibility of inoculating the tubercular, the pregnant woman, or a case of recent vaccinia. The three inoculations are done at from seven to ten days intervals; the plan pursued mainly has been about eight days.

The type of vaccine is a stock preparation prepared by the Kentucky State Board of Health and furnished free of charge to physicians in two ounce bottles with rubber caps. These caps are simply sterilized by painting with iodine. The vaccine is best kept at a low temperature.

There is much discussion in many quarters as to the time between series of inoculations for any given individual or group. We are safest in following the rule of the army and the following letter from Lt. Col. J. F. Siler, of the Surgeon General's office is recommended as best authority obtainable:

"The Surgeon General directs me to reply to your letter of May 16th. relative to the protection afforded by anti-typhoid inoculation. It is not possible to state the length of time that a complete series of three inoculations will afford protection as we have but little satisfactory evidence on which to definitely base an opinion.

The evidence which we have collected in the regular army indicates that under ordinary conditions the degreee of protection afforded is very high for at least three years, and it is the policy in the army to re-vaccinate every three years for three series, or until the individual is forty-five years of age.

In case a command is constantly exposed to infection as happened during the World War in the troops of many commands in France, with resulting occasional small epidemics of typhoid, it is our policy to re-vaccinate irrespective of previous vaccination, provided local conditions appear to warrant it. Under peace-time conditions however, the time interval is three years as explained above."

In Scott County since October 1st we have given 1,206 inoculations which means the immunization of 402 individuals. This represents nine campaigns in seven communities, for the most part scattered rural schools in districts of small population. The records show about 40 per cent reached on an average in each. Most of the volunteers were school children, tobacco-stripping and bad weather militating against a large adult attendance. Reactions were mild on the average with no severe ones or infections to our knowledge. Children seemed to stand the inoculations with less general symptoms or local soreness than adults.

In conclusion I wish to take this opportunity of expressing my appreciation to my staff for their assistance in all phases of these campaigns. The nurses have given lectures, done follow-up work and more than once taken charge of the completion of the inoculations. The doctors have shown a very generous and co-operative attitude, not only in reporting cases promptly, but in backing up the Health Department in this and other activities. Thanks also are certainly in order to the local newspapers who have been liberal as to space, allowing much propaganda work to go out in this way. I have received efficient and thorough co-operation from the State Board of Health, especially in the receipt of vaccines on short-time requests and in no case has it arrived too late for a given schedule. The directors of the Bureau of County Health Work of the Board have lent every assistance possible. Both have regarded this as an important phase of Health Department activities. We expect to continue our efforts along the line of community and county immunization and sanitation. By this time you no doubt feel like the soldier who, during mobilization, came in to get his typhoid "shot" and seeing the floor covered with unconscious forms saluted and asked: "Captain, where do you want me to lie down to get mine?"

Determining Early Renegeration of Nerve Fibers.—When a peripheral nerve is stimulated, by the application of cold to the skin in human beings or by direct stimulation of the trunk in animals, there is a reflex stimulation of the respiration, blood pressure and reflex contraction of muscles innervated by nerves other than the one stimulated. These phenomena are so well established and constant that Malone uses them as an index of regeneration when the nerve trunk is exposed at operation. The method he describes would seem to be particularly useful in early cases as the test was positive after five weeks in dogs.

PELLAGRA*

By W. W. Durham, Hopkinsville.

Pellagra is a disease commonly characterized by a peculiar cutaneous lesion, digestive disturbance, and in a large number of instances by nervous and mental disorders.

The term Pellagra being applied from the skin lesion meaning "Rough Skin," by Frapoli in 1771. It probably existed in ancient times but was not recognized as a definite entity until studied by Cassel and others in the Eighteenth Century.

The disease is common in the Balkans, Italy, Egypt, West Indies, Mexico and Central America. It did not attract much attention in the United States until about 1900 to 1907. The first case the writer saw was in 1909, and from that date numerous cases were recognized in the following six or seven years of private practice.

Marzoni and Lombrose were two of the chief supporters of the Zeist theory, Sambon and Tirzoni were in the van of the Anti-Zeists.

Since the Thompson-McFadden Commission started their work many facts concerning the epidemiology of Pellagra have been discovered; for instance it was found that its occurrence predominated in the small industrial villages, rather than on the farm. This was not so in the observations of Sambon, who found the greatest incidence in farm laborers and caused him to promulgate his parasite theory; however, the observations of the two commissions are not parallel, as the farm laborers in Egypt are poorer fed than the dwellers in the cities, while in our Southern States the inhabitants of the small cotton mill villages have a poorer ration than the farmers; so in fact the results of the two observations are parallel and both unwittingly support the deficiency theory.

The concensus of opinion among investigators of today is that the etiologic basis of the disease is one of purely metabolic disturbance, due to imperfect dietic conditions.

Moreover, Pellagra seems to be a disease of locality or place, not that it is infectious but from the habits and modes of living of these respective localities. Jobling and Peterson in their studies and investigations became suspicious of the constant contact to Pellagrins in relation to its incidence; but at the present time as we see it, it was due entirely to place and not to contact, in as much as in a Pellagra district contact could easily be traced by Pellagrous individuals to some former occasional contact due to fortuitous circumstances, especially as these people as a rule frequently change residences owing to financial reasons.

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*Read before the monthly meeting of the Superintendents of Public Institutions.

Great progress can now be made in the treatment of Pellagra because of the comparatively recent comprehension of its Etiology. There are still a few who will not accept the many outstanding proofs of its character as a deficiency disease, but the evidence and the burden of proof justify the final conclusion, that it is a deficiency disease, and the two schools of Pellagrollegers, the Zeists and the Anti Zeists, may became reconciled, now that we know that corn can be rendered deficient by the impairment or destruction of the germ, which by its position and character is rendered vulnerable to both animal and vegetable inroads.

OCCURENCE.

Pellagra occurs most commonly in persons from 18 to 50 years of age, in warm or temperate climate. It seems to attack females oftener than males, the ratio in my experience being about three to one. Authorities assert that the negro race is very susceptible to it. Personally, I have not seen but one case of pellagra in the negro race. In countries where this deases has exisited for long periods, according to authorities, the prognosis is much more favorable than in virgin territory. Young subjects, in my experience, have also offered a better prognosis than the older.

SYMPTOMS

The disease usually begins with neurasthenic symptoms such as insomnia, feelings of apprehension and vertigo, etc., followed by digestive disturbances, sore mouth and diarrhea. The parts of the skin exposed to the sun's rays begin to show a delimited symmetrical erythema, which passes into a severe dermatitis with slight swelling of the parts which desquamates in a few weeks, leaving a soft velvety appearance with slight pigmentations.

In the less severe cases the symptoms automatically disappear as winter is ushered in, only to appear early in the following spring; however, as a rule there is no remission of the nervous symptoms.

In the more pronounced cases, and in fact the majority of pellagra cases admitted to our state institutions, are of this type, we find a red fissured tongue, spongy gums, salivation, tongue indented about the edges, with severe burning pains of the tongue, throat and lips. The skin lesions extend further up the hand and arm, the dorsum of the feet become involved, the mask appears, Cassel Necklace, and occasionally I have seen the dermatitis appear upon the sternum, the genetalia, and at other places on the body subject to any slight degree of irritation. Diarrhea, abdominal pain and anorexia, weakness and prostration, and in fact all the symptoms which go to make up the pellagrous triad, that is, cutaneous, digestive and nervous symptoms, all very pronounced.

The factors which influence our prognosis are as follows:

1. Ability of patient to take food.
2. Course, acute, sub-acute, or chronic.
3. Age.
4. Gastro-intestinal symptoms.
5. Extent of skin lesions.
6. Psychic manifestations.
7. Central and peripheral nerve lesions.

First: Ability of patient to take food.

Many patients on arrival refuse to take food and when taken seems only to add to the discomfort, salivation becoming more pronounced, gastric and abdominal pains more severe, sleeplessness more marked and even wretching may be induced; of necessity all foods must be withdrawn at the great risk of exhaustion, until the acute symptoms tend to subside; and in these cases the prognosis of course is grave:

Second: Course.

If the case is acute, having a high temperature, fast pulse, delirium, vomiting and diarrhea, it is hopeless. If sub-acute with the involvement of the sensorium it is serious. If chronic the outlook is more hopeful, from the fact that time alone gives us the chance to remedy the cause.

Third: Age.

Subjects from 20 to 35 offer a better prognosis than from 35 to 50.

Fourth: Gastro-intestinal.

Many cases are admitted with severe catarrhal gingivitis, anorexia, vomiting and diarrhea, and with persistent abdominal pain and extreme exhaustion, a glazed tongue and achylia gastrica, and in the face of these symptoms always prepare for defeat.

Fifth: Skin lesions.

Skin lesions are not always in direct proportion to the severity of the disease. However, as a rule with a large skin involvement you may prepare for a stubborn resistance to treatment, but you may still have a digestion sufficiently intact to enable you to combat the disease successfully.

Sixth: Psychic disturbances.

The more profound the psychic disturbances the more guarded the prognosis should be. The mentality, of course, is always involved in cases received in our hospitals, and it is generally of a depressive nature, suicide being not infrequently attempted. Delusions, illusions and hallucinations are all to be found in different patients, introspection and negativism with absolute refusal of food follow to handicap treatment and recovery.

Seventh: Central and peripheral nerve lesions.

Niles says that "if the patient is under 50 and has sufficient intelligence to adhere to a fixed line of treatment and will co-operate faithfully with the physician a permanent cure may be expected," but in our hospitals these patients have not this faculty, then accordingly all our patients should die, but we do not find this true. However, the greater the organic change in the central nervous system, the more serious is the prognosis, and with blunted deep reflexes and retarded superficial spastic paralysis with sphincter involvement, we may look for disastrous results.

PROPHYLAXIS AND TREATMENT.

Wood says that prophylaxis is now and will continue to be the most important phase of the subject, and that the disease is much more cheaply prevented than cured. I think Wood could just as easily and correctly have applied this dictum to any other disease.

Suffice it to say that pellagra is a deficiency disease and the prophylaxis as well as a great portion of the treatment is a balanced diet; whether the deficiency of this diet comes from eating bread made of wheat and corn which have been too highly milled or from the consumption of rice as the principal diet that has been too highly polished, or from the indigestion of vegetables that have been over-cooked or cooked by the help of chemicals or by making the principal diets from canned foods in which the vitamines have been destroyed, the balance and sufficiency must be restored.

In 1911 Funk gave to a particular organic substance the name vitamine, meaning "basic to life or life-giving." He secured this substance from rice polishings in almost the pure form.

It is now applied in a more general sense to a group of indefinite chemical substances designated as fat soluable A, water soluable B, and water soluable C vitmaine.

Investigators for years have assumed that if the diet contained the proteins, carbohydrates, fats and mineral salts in sufficient quantity that all would be well with the body, as the essential requisite would be supplied. Funk, McCollum and others found that not only this but also vitamines must be present to secure perfect metabolism. The evidence is well established that each of the three types of vitamines plays a specific role in nutrition, and that all three must be present in the body to produce the optimum result.

It is, therefore, patent that we do not only have to supply the pellagrous patient with the various articles of food which make a balanced ration, but they must be supplied in a way in which the vitamine elements they contain have not been destroyed.

I have seen pellagrins in homes that were well supplied with food, but the manner of preparation exceedingly poor.

I have also pellagrins in homes beautifully supplied with food, but owing to the excentricity of the appetite only certain foods, poor in vitamines were eaten. It is not what one has to eat but what one actually eats that goes to make up the sum total of diet.

May it not be that in some of the institutional developed cases, that this is the case? I have in mind one patient who developed Pellagra and on investigation found that the principal diet was sweets and bread. On changing the diet and with the help of medication the disease disappeared.

Since vitamines are more or less unstable and are affected by many of the ordinary influences, such as heat, light, alkalinity and oxidation, and that they are distributed to a fair degree throughout the animal, and vegetable kingdom, and hence are available in our natural food, and as they are absolutely essential to the normal physiologic requirements of the body, let us then in both our treatment and prophylaxis keep a weather eye to the kind, character and preparation of the food.

McCarrison probably has done the most extensive work that has yet been published in respect to faulty food. These experiments were carried on with guinea pigs, monkeys and pigeons. He was able to produce clinically the symptoms, that exist in man under the stress of such entities as dyspepsia, Colitis, Mucous Diseases, Chronic Intestinal Stasis, Pellagra and many other diseases, but the use of faulty food, unbalanced diet, and diets poor in the Vitamines. Also he relieved these conditions on the restoration of the normal vitaminized diet or by an over restoration of such normal diet.

He therefore concluded that:

First: "A distinct relation exists between the amount of Vitamines required and the balance of the food in proteins, carbohydrates, fats, and salts; the efficiency of the Vitamines is dependent on the composition of the food mixture."

Second: "A distinct relation exists also between the amount of the vitamines required and the rate of metabolic procession."

Third: "Each vitamine plays a specific part in nutrition."

Fourth: "One vitamine cannot replace another, although its function may be interfered with by the absence of another."

Fifth: "All vitamines are concerned in the maintenance of the orderly balance between destructive and constructive cellular processes."

Then it becomes necessary in the treatment not only to supply the foods that are rich in the vitamines and a plentiful supply of nutritive factors—proteins, fats, carbohydrates and mineral salts, but some concentrated preparation of the vitamines should be administered in an effort to activate the retarded metabolic processes, and from the fact that we as yet do not exactly know what type of vitamine to prescribe for each pathological condition, and from the further fact that there is no evidence to show that the vitamines are injurious, the concentrated preparation should contain all the three; and that as the appetite is generally very poor, digestion retarded and assimilation lessened, the amount of the vitamines supplied must be far in excess of the amount required for a normal metabolic maintenance.

Many many drugs have been used and many mistaken claims made. Salt was regarded as a cure in Italy and the Government at one time made free distribution of it to the peasantry. From the first Arsenic has been used both orally and hypodermatically. I have given from one-fortieth to one seventy-fifth of a grain of Arsenic by the mouth also have given alternating hypodermic injections of sodium cacodyllate five to seven grains and iron arsenite with little or no benefit, have also given atoxyl with little or no benefit, and after quite an experience with the occurrence in some cases of impaired vision, and feeling that some of the cases of neuritis was from the medication and not the disease, I do not feel that one is justified in using Arsenic in large doses.

Huge doses of dilute Muratic Acid were used with improvement in some cases by aiding the digestion, however, the good effects were only temporary.

Hydro therapy has been advised by many authorities but owing to the many contra indications I doubt the advisability of its use, and I also have found on record an instance of recovery from this treatment.

Quinine hydro bromate in three grain doses three times daily which is claimed by some authorities as efficacious, also failed to give results in my hands.

Auto serotherapy is also advised, but we have never used this method of treatment.

All in all the most effective treatment is the diet, if the diet is correct pellagra will never occur, and in preparing this diet for my patients we prepare the bread from meal made of the whole corn, this corn to be selected from well matured sound ears and from flour made from the whole grain of the wheat, this is sometimes referred to as the offal of the mill or chops, the legumes are fed in plentiful quantities, whole fresh milk, butter, fresh eggs, and fresh vegetables, and to be sure that a generous supply of the water soluable vitamines are injected, a bowl of the liquor from all of the cooked vegetables is served to each sufferer as well as the vegetable itself.

The bread made from the chops at first may not be well received by the sufferer, but soon it will be found acceptable as the appetite increases, also the liquors may at first be rejected owing to the eccentricity of the patient, but by well directed effort and well timed suggestion by the nurse, it, too, will soon be enjoyed.

Patients are encouraged to take all of the milk that they will drink, three times a day. Raw vegtables are given plentifully if well borne. Fresh lean meats with a plentiful supply of the fats, not killed by cooking, all cooking to be of the shortest duration possible and at as low a temperature as possible. However, if it is preferable to subject the food to a high temperature for a shorter period than at a low temperature over an extended period of time, as the vitamines seem to be injured more by exposure to heat at a medium temperature for longer periods than they do to a high temperature for short periods.

Soda and all alkalies are excluded from the making up of the bread, and with the above given diet with its mode of preparation and administration and with the aid of the concentrated vitamines I am able to report the following results:

We commenced the year 1920 with fifteen cases of pellagra which had developed in the institution from 1910 up to that time. How many were received during that time and were cured or died it is impossible to say, also how many developed the disease within the institution and were cured or died the records do not state. However, during the year 1921 we admitted nine patients with well developed cases of pellagra. Up to the present time in 1922 we have received four patients with pellagra. Patients received in 1921-1922 were from Daviess, Trigg, Calloway, Simpson, Warren and Hopkins counties. We treated thirty-six cases of pellagra that had developed in the institution or been admitted with the disease prior to 1921 and were received during that year. During the year

1922 we have received four cases of pellagra, making forty cases treated in the institution since January 1, 1921. Out of these forty cases seven died, thirty cases are pronounced cured, two cases remain in a chronic state and one case in an active condition.

Death rate	17½%
Cures	75%
Chronic and uncured cases....	7½%

Let me say for the efficiency and fullness of our present diet as furnished by the State Dietitian, that there has been only one case of pellagra developed within the institution since July 1, 1920. This case was noticed early in the spring of 1921, and was at once placed upon a highly vitaminized diet, and made an uneventful recovery and was pronounced cured on or about August 1, 1921. Since that time he has had no recurrence.

With our diet arranged as at the present time with its diversity of foods and with its careful balancing, I believe of this malady a smaller percentage of incidence will obtain than among the civilian population of our outlying counties.

But let us bear in mind that a patient once cured is not always cured. That the cause again appearing the effect will again surely result, and with our cured patients we must ever be careful as the cure will not last if they be allowed to resume their vicarious manners of life.

As to the restoration of mentality I ceased to hope for a great improvement in the psychosis of the far advanced, as from all evidences there is an organic pathology of the brain.

A correction of diet will arrest rickets, but it will not straighten the bowed legs; by the administration of salvarsan the blood and sera of the paretic is persistently negative, but, lo, the paralysis will proceed.

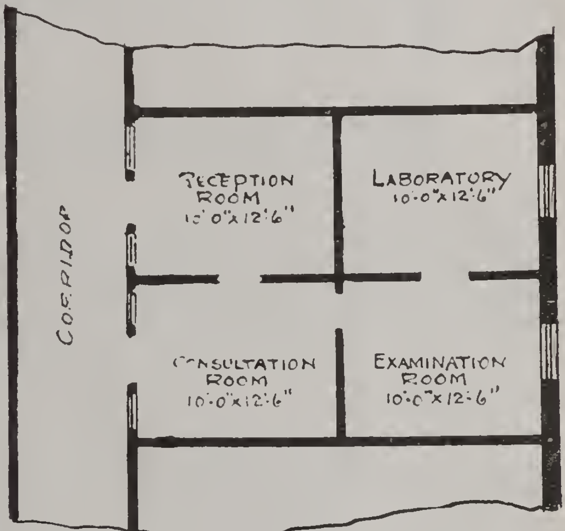
So with pellagra, if the organic changes have taken place the disease may yet be cured, but the sychosis will remain.

Sequester in Mastoid.—For twenty days the man of 35 had been having agonizing headache and vertigo so severe he could not stand alone. There had been otitis some years before, and this had flared up anew as these symptoms developed. The mastoid operation revealed that the entire roof of the aditus and of the mastoid was movable, forming a large sequester from the bony layer between the tympanum and the cranial cavity to the bony roof of the antrum. Baragis broke up this sequester and removed the fragments, leaving the meningeal surface exposed. It seemed normal, and he sutured the parts after resection to make an opening into the auditory canal to drain the mastoid. The outcome was perfect.

COOPERATIVE OWNERSHIP OF OFFICE SPACE.*

By G. A. HENDON, Louisville.

The organization of a professional community for the mutual ownership of a structure for office purposes is practical, simple and financially safe. Such a building adapted to the purpose in view, if judicially located, economically constructed and skillfully managed will have a net earning capacity of 5% per annum on a basis of one occupant to each 500 square feet. The enterprise can be financed upon a basis of one-half the cost of construction and ground in cash, the remainder can be borrowed from a lien on the building and lot at an interest rate of 6% perhaps, and the principal payable in almost any term of years.



ONE MAN PLAN.
PHYSICIANS & SURGEONS BUILDING.
MEYER & BRENNER ARCHITECTS.

20x25 Unit

For purposes of illustration let us suppose that a building containing 30,000 square feet of rentable office space is to be erected and for convenience we divide it into ten stories which would result in there being 3,000 square feet on each floor. Investigation seems to disclose that the average amount of space used per capita by the physicians of Louisville is 500 square feet. Therefore, there would be space for six doctors on each floor. If each participant were to pay down in cash $5.00 for each square foot of space he expected to occupy and an annual rental of $1.50 per square foot at the end of ten years he would own his own space. For example, a subscriber takes 500 square feet, for which he pays

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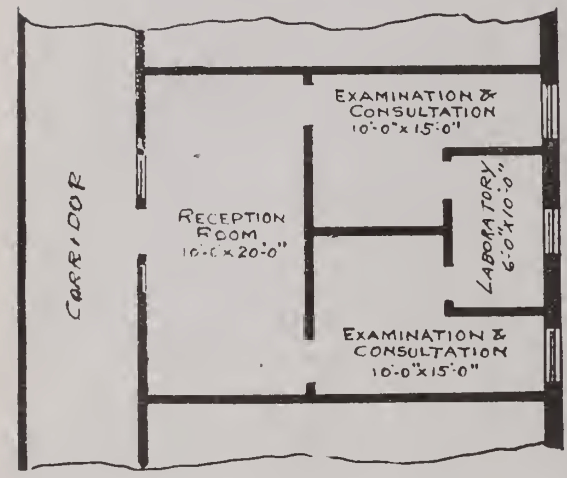
*Read before the Jefferson County Medical Society.

$5.00 per square foot in advance, which would total $2,500 and $1.50 per square foot per annum, aggregating a grand total of $10,000 in ten years. Please keep in mind that our unit of space is 20x25, a dimension that possesses remarkable adaptibility.


Examination & Consultation 10'-0"x15'-0"
Corridor
Reception Room 10'-0"x20'-0"
Laboratory 6'-0"x10'-0"
Examination & Consultation 10'-0"x15'-0"

Two Man Plan with Lab.
Physicians & Surgeons Building.
Meyer & Brenner Architects.

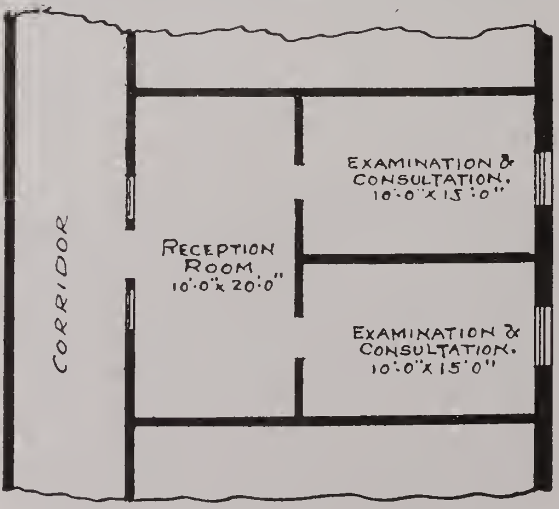
20x25 Unit

It seems from architects' figures that the cost of construction is $10.00 per square foot, including ground well located and the cost of maintenance, heat, light, interest depreciation, service, tax, etc., is $1.00 per square foot per annum. For 500 square feet maintenance would be $500 per annum, or $5,000 in ten years. Adding the cost of construction and ground for 500 square feet ($5,000) to cost of maintenance ten years ($5,000) makes $10,000. We see that the initial payment of $2,500 plus the $750 per annum for ten years' rental is also $10,000, which balances and clears the space of incumbrance. After that period it would only be necessary to collect a rental of $1.00 per square foot per annum to meet expense of maintenance and charge to yourself 50 cents per quare foot to cover interest, to propel the enterprise by its own steam. To make this plan available and adapt it to the purpose in view the project would need to be incorporated, and for each $5 subscribed a share of preferred stock would be issued to represent the actual investment and a share of common stock to represent the speculative value of the enterprise. I stated at the outset that the net earning capacity of such building as we have contemplated would be 5% per annum, based on 500 square feet per capita. It, however, appears later in our calculations that the construction and ground cost would be cleared in ten years—on the surface this looks like 10% net. But the calculation is predicated upon one-half the sum of construction and ground cost being paid in cash. That reduces the yield to 5%. If the owner of a space unit 20x25 chose to share it he could do so at whatever rental he might collect, thereby increasing the earning power and reducing the rent, and it should not be forgotten that if a subscriber wanted more than one unit additional space could be secured by subscribing $5 for each square foot. It would make the project ideal to subscribe in units of 20x25. We have sought to prove this to be from a financial standpoint a 5% investment net, based on the presumption that each individual would occupy a unit of 20x25, but if two or more occupied a unit the expense would be divided by the number of occupants. Everybody knows that safe securities can be bought that yield 7%. One naturally inquires what advantages can accrue that will compensate the loss of 2%. There occurs to my mind seven issues that can be considered as covering this discrepency with perhaps something over.

1. Pride of possession.
2. Speculative value of the real estate.
3. Professional localization.
4. Privileges of proprietorship.
5. Opportunities for cooperative effort.
6. Reduction of duplication of service and equipment.
7. Translation into steel and stone construction the ideals of the local profession and the prepetuation of same as a heritage and an example to posterity.

Considering each separately and in the order named we take—

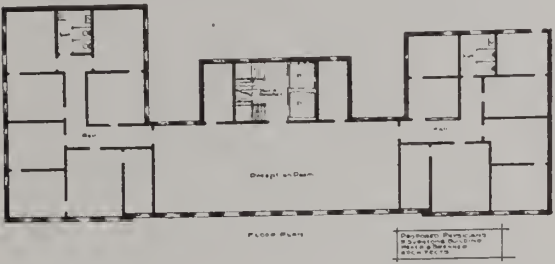
1. Pride of possession and involuntarily float into fancy on the familiar lines. "Breathes there a man with soul so dead who


Examination & Consultation. 10'-0"x15'-0"
Corridor
Reception Room 10'-0"x20'-0"
Examination & Consultation. 10'-0"x15'-0"

Two Man Plan.
Physicians & Surgeons Building.
Meyer & Brenner Architects.

20x25 Unit—No Lab.

to himself hath never said, this is my own,'' etc. There is always to be found elasticity in the tread and dignity in the bearing of a man upon his own soil or beneath his own roof. There grows out of possession the stabilizing appreciation of responsibility and the sacred impulse of patriotism and all the noblest attributes of citizenship.



Common Reception Room for Six or Eight.

2. The speculative value of the real estate. While this may be nothing or even less than nothing it is worthy of serious consideration. I know of one concrete example that may serve to illustrate the importance of this feature. On August 5, 1921, there was submitted to me an option of $50,000 on a piece of corner property. For obvious reasons I could not exercise the option and four months later the property sold for $60,000, a clear gain of $2,500 per month. Such a thing can happen again.

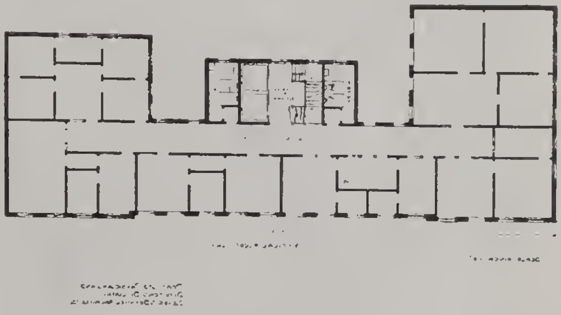
3. Professional localization. Centralized energy of any type is magnetic. It attracts and accumulates allied interests in a way similar to the action of a magnet upon iron filings. In the localization of the Louisville medical profession there would be established a new and fruitful source of civic pride and confidence shared by every enlightened inhabitant of our city. Not only would it be a source of pride, but also it would become a material municipal asset in ways and for reasons that are quite apparent.

4. Privileges of proprietorship. These may be expressed in terms of certain freedom and liberty of thought and action that cannot obtain beneath an alien roof. A vote and a voice in regard to rental rates and office space and their adjustments are no cheap indulgences and are not without their strong appeal. However, fairness demands that on the contrary burdens and responsibilities and hazards of ownership should receive adequate consideration in this connection.

5. Opportunities for cooperative effort. Cooperation is a newly discovered form of energy that is as revolutionary in its effect upon human affairs as steam and electricity were at the time of their introduction into physics and mechanics. Cooperation is the most powerful kinetic influence in the world today. It unclogs the wheels of progress by the elimination of competition. Competition has consumed more effort and wasted more energy than was utilized in the civilization of the world. Competition is to medical achievement what friction is to mechanics. Remove the friction from machinery and you have unshackeled industry and commerce. Remove competition from medical science and you have emancipated the race. Any plan of action that includes the application of cooperative effort is unlimited in its possibilities. Any enterprise that invokes its aid and employs its marvelous genius is destined to realize success in its most complete and enduring form.

6. Elimination of duplication of service and equipment. This is an economical detail that can be amplified and elaborated according to the judgment of the individuals concerned. For illustration by a plan of construction that contains one reception room to the floor approximately 40% of the office rent is conserved. By employing one maid to a floor, one library, one laboratory, one technician, etc., the saving would grow enormously, or if two men should choose to occupy a 20x25 unit, then 50% would be saved in rent.

7. Translation into steel and stone construction the ideals of the local profession and the perpetuation of the same as a heritage and an example to posterity. To capture the high tide of the medical progress of our time and symbolize it by a monument of beauty and usefulness would be an achievement worthy of the noblest ambitions of any age or profession.



Individual Suites

The following practical considerations seem to me worthy of special attention:

1. Selection of site should be made by choosing three of the leading real estate dealers of the city and be guided by their advice.

2. For architectural design a building committee would confer with leading architects who would submit plans for their approval.

3. Management. The building above the first floor should be tenanted only by physicians. The supervivsion should be only in the hands of a capable real estate agency.

For illustration we beg permission to show an elevation of a building that is adapted to our purpose. We also submit floor plans, one showing space provided for six doctors, each having his own reception and consultation room and private laboratory. The other showing the same area with one reception room, thereby accommodating either eight or ten doctors on the same amount of floor space and allowing each a room for consultation and laboratory; also suggestions concerning adoptions of the 20x25 unit.

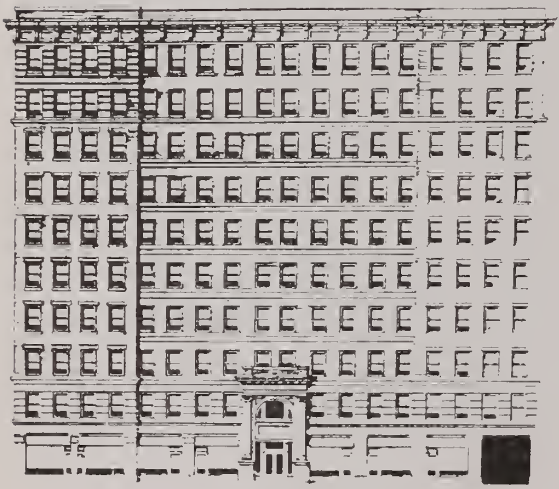
In conclusion I would sum up by saying that the pecuniary advantages that grow out of cooperative ownership are:

1. Each occupant is his own tenant, therefore, vacancies and arrears of rent will seldom occur.

2. If the owner of one or more space units so desires he may share it with others of his own selection, thereby dividing expense.

3. That a cooperative medical center would bring our profession into a regional prominence that might otherwise be lost.

4. Most of the arguments in behalf of the erection of a physicians' office building that I have heard so far were saturated with the enthusiasm inspired by private interests or rainbowed by the captivating visions of Utopia.



Street Elevation

5. For economy and efficiency the building should be constructed upon a basis of the following units: (a) Unit of space, 20x25 feet per capita. (b) Unit of land, 40, 50, 60 or 70 feet front. (c) Unit of cost, $10 per square foot for ground and construction. (d) Unit of maintenance, $1 per square foot per annum. (e) Unit of purpose, strictly a building for physicians and closely allied interests.

After further conference with the architect it appears that eight blocs of 20x25, or four blocs of the same dimensions to the floor is more practical and economical than six as suggested by the text of the paper.

FOOD FOR THOUGHT.*

By J. H. SOUTHER, Oakland.

I have been greatly interested in the articles taking the rounds in the Medical Journals relative to the growing scarcity of doctors in the rural districts of the country. It seems to me that the condition is quite general and will become more so as time goes on. Not only in the remote sections of our country, but in the densely populated sections are conditions becoming serious in this regard. There is certainly a cause for this condition that but few of the writers have ventured to give, and none have suggested a remedy. To my mind the cause is quite apparent and is couched in the one sentence, to-wit: centralization of the profession in the hands of the rich, who alone are financially able to meet the requirements of the American Medical Association, who seem restless and want to add more time and money to the curriculum, which is already beyond the means of the poor worthy young man, who has aspirations for the study of medicine and even to the more fortunate it is sufficient to divert his aspirations to another avocation. You are all appraised of the prerequisites required of the young man on matriculating. These together with the great outlay of time and money are in my opinion the principal cause of the depletion in the ranks of the profession and answers the question why there is only 173 matriculated in our colleges this year, a fall off of 60% from twenty years ago, and those that are fortunate to graduate will not locate in small towns or rural districts, as they are so highly trained they are inclined to specialize, and the small towns or country offers but little opportunity to succeed in practicing their profession.

Higher education is very desirable for the profession, but I think it can be overdone. There is a tendency for the standard to be raised still higher which I think is uncalled for, but rather there should be allowed medical colleges that would be permitted to grant degrees, say of forty years ago, at which time the graduates proved to be as competent in the treatment of diseases as those of the present day. Though less scientific, I admit, but so much the better for the patient in many instances.

The government during the war emergency relaxed their rigid rules of requirements for eligibility for appointment to the army medical service and we now have as great a need, one that will become more and more prevalent, that affects the vital welfare of our nation, then why shouldn't there be some method adopted whereby these rural communities may be supplied with physicians. Let me again repeat, I am not objecting to high medical attainment, but I do think it a mistake to require all medical colleges to conform to one standard. Let there be colleges of the highest standard, where the young man of means may have the privilege of attending who will be fitted as a consultant for obscure cases that the rural physician cannot care for. A large majority of the cases in general practice are simple and can easily be cared for by one who has not a thorough scientific knowledge of medicine. Theory must be reduced to practice in order to succeed, and at the bedside is where it is accomplished.

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*Read before the Warren County Medical Society.

DR. E. W. JACKSON, PRESIDENT OF THE SOUTHWESTERN KENTUCKY MEDICAL ASSOCIATION.

By R. T. Hocker, Arlington.

At the annual meeting of the Southwestern Kentucky Medical Association, May 10, 1921, for the second time in its history chose for its president a military hero, a surgeon of the great World War.

Dr. Elbert W. Jackson was born in Hickman County, Ky., October 11, 1887. He acquired his literary education in the public schools of his native county and Marvin College, Clinton, Ky. He began the study of medicine in 1907 with Dr. J. R. Scarborough. He matriculated in the Medical Department of the University of Louisville in the autumn of 1908, and graduated with first honor from that school in the class of 1912, and was class president.

He was appointed interne to the City Hospital and served one year. He was physician to the Eastern Indiana Hospital for the Insane at Richmond for fifteen months. He located at Paducah in October, 1914.

When our country entered the greatest war that ever occurred in the world's history, when the very existence of democracy was threatened and imperialism seemed to be imminent, he promptly tendered his services to his country.

In July, 1917, he was commissioned First Lieutenant in the Medical Reserve Corps. Entered active service December 13, 1917. He remained in the army approximately eighteen months, thirteen of which were spent in France. His demonstrated ability as a surgeon brought him promotion to that of Captain while in France.

He was honorably discharged May 5, 1919. He was four times unanimously elected secretary of this association. He was serving in that position when he entered military service. How well he performed its duties the records attest more forcibly than I am capable to express.

Dr. Jackson is a diligent student, and preeminently so of medicine, also a patient investigator of problems with which physicians must struggle in order to achieve an enviable degree of success. He seems to have dedicated his life to scientific research. His splendid natural and acquired equipment, body, mind and heart, seems completely dedicated to his profession, being endowed with an investigating analytical mind. He is a high class scientific diagnostician which means almost everything in order to do satisfactory work, while taking a profound interest in all professional duties, he is apparently more especially so in surgery.

He is a good reasoner and can discuss in a highly creditable manner scientific questions in any medical association, his remarks always have the evidence of a strong mind, given to scientific research, and are worthy to be heard, carefully considered and stored away in memory to be used in combating the ills, to which mortals without an exception are subjected.

Dr. Jackson is now connected with the Riverside Hospital and the Illinois Central Railroad Hospital, and has already attained a place in the esteem and admiration both as a high toned, honorable gentleman and practitioner of the healing art rarely equaled by a physician of his age. Of the long list of his predecessors, fifty in number, only three younger than himself have been so honored.

Professionally he is thoroughly ethical, no one knowing Dr. Jackson well would ever think of associating his name with a word or act unworthy of a splendid gentleman. He is a doctor of whom any community in our grand old state might well be proud. He has given us a year of efficient service as President. We hope to retain him in our midst until his career is closed. Wherever his abiding place may be he will always have a warm place in our minds and hearts.

The subject of his retiring address, "The Evolution of Medicine a Product of Work," a splendid production reflecting honor not only to himself but to the association as well.

Dr. Jackson is a member of the McCracken County Medical Society, and of the Kentucky State Medical Association, of which he was elected Vice-President in 1920.

Fraternally, he is a member of Paducah Lodge, Benevolent and Protective Order of Elks.

In deportment there is blended dignity with kindness and courtesy to all with whom he comes in contact. We honored him and he by his splendid work has honored us.

DIAGNOSTIC VALUE OF THE X-RAY IN JOINT DISEASES, CASE REPORTS.*

By Vernon Blythe, Paducah.

This discussion will confine itself to the various forms of disease involving the joints, epiphysis and contingent surfaces and the sequela of fractures where there was bad union or in traumatism where there is disease as a resultant. Fracture study under the x-ray is in itself a big study and only by a clear knowledge of the histology and development of the epiphysis, by the anterior and posterior position in conjunction with the lateral can an intelligent interpretation be made and this knowledge can only come after a thorough comparative study of many different plates.

PATHOLOGICAL PROCESS INVOLVING JOINTS.

Students of these conditions find it necessary to study for the sake of clearness and convenience the disease conditions of bones according to their anatomical origin.

1. Joint diseases confining themselves to the articulating surfaces.
2. Diseases of the joints which begin in the articulating surfaces and extend to the body of the bones.

A great amount of information has been brought out in recent years concerning the differential diagnosis of joints lesions by means of the x-ray, such as tuberculosis, gout, Charcot disease and arthritis in the various forms. Anterior, post and lateral views should be taken where there is any doubt. Where there is fluid accumulation the interspaces are increased in their size.

The diseases which confine themselves to the first class are infectious arthritis, atrophic and hypertophic also the first stages of tuberculosis.

In the second division we find the later stages of tuberculosis, destructive stages following fractures, Charcot joints and syringomyelia.

The normal joint is made of synovial fluid. synovial membrane and cartilaginous matter. There should be no free bone in a joint or other foreign substances. There is a symmetry and continuity of the articulating surfaces of a normal joint which is revealed by the x-ray shadowing which is distinctive from the disease conditions. These shades of difference are absolutely necessary to be known to be able intelligently to interpret disease conditions.

It is not the purpose here to enumerate the clinical symptoms of the joint troubles, but to give x-ray findings most distinctive of the different disease.

In Class A where the lesions are not tubercular we do not see a narrowing of the intra-articular spaces, especially is this so in the vertebra. Lipping or a slight irregularity begins at the margin near the lateral ligaments and exostosis are formed which eventually if severe unites with similar developments from the other surface and will form a bony ankylosis.

ACUTE AND CHRONIC ARTHRITIS.

In the acute type the multiple articular arthritis does not show any destructive process of the cartilage so there is not any change in the articular spaces. There is a flocculent appearance and some cloudiness within the joint, a surplus of fluid is formed, the synovial membrane and the tissue around the joint articulation are swollen. After the inflammation has subsided the joint surfaces look normal.

The following classification of Goldwhaite divides chronic arthritis as follows:

1. Infectious types: These include tuberculosis, gonorrhea, syphilis, pneumonia and forms whose causations are unknown, but whose clinical signs are similar.
2. The atrophic cases. .
3. The hypertropic types.

The first stages of these infectious arthritis show swollen limb, fluid in the joint and swelling around the joint. There are no evidences of any cartilaginous destruction. After the subsidence of the acute stage, in which period the fluid is absorbed, we begin to see an eroded articular surface, destruction of cartilage and a change in the spaces between the articulating surfaces. There are no evidences of an atrophic change and without repair in this stage. There is also signs in places of small punched out areas in the cartilage. The next cycle, or rather continuation of the conditions are that of repair, proliferation of new bone which begins to fill the areas of destruction, exostosis are formed and ankylosis occur of a bony character if the infection has been of sufficient severity. This is a brief summary of the cycles in an attack of the joints with an acute infectious arthritis.

However, much resemblance there is in most of these cases from an x-ray point of view, there are some outstanding features in the differential diagnosis. It is in the early stage we have the greatest difficulty in differentiating the various forms of infectious arthritis. In doing this it is well to consider the history, age, traumatism, clinical findings and they suggest a bad plate, but my comparing with other parts of the bone we see clearness and distinction.

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*Read before the Southwestern Kentucky Medical Association.

As the disease progresses we see porosity of the bone, destruction of the cartilage, irregularity of the surface, necrosis and sequestra are frequent. The shaft of the bone shows marked atrophy. The shortening of the bone, angularity is evidenced in spinal vertebrae obliteration of the joint spaces. There is very little tendency to new bone formation. Sinuses may form and ankylosis is the most frequent result.

Syphilitic diseases involving joints shows an accumulation of fluid, the synovial membrane is thickened and at an early stage cannot be distinguished from multiple arthritis. Add to this a periostitis at the junction of bone and cartilage which we do not get in some luetic conditions, but after all we can and do get a fairly characteristic picture of the syphilitic joints.

Gonorrheal Arthritis: This may be an involvement of any joint, but they are most frequent in the knee. We may have only the appearance of a simple arthritis, but in some cases there is a seropurulent effusion, destruction of the cartilage beneath the patella and then may follow an ankylosis with a disorganized joint.

Other types of the infectious arthritis, such as pneumococci, typhoid, etc., will show similar changes, but the clinical history in these cases will aid in the differentiation of the lesions.

THE ATROPHIC ARTHRITIS.

This character of arthritis does not give the same clinical picture that a shadow of the beginning of an infectious arthritis does. It is more like the second stage of the infectious type where the cartilage are absorbed. It is often seen in the early years of forty and gives a subluxation and contraction of the tendons. This condition is seen in the so-called rheumatoid arthritis or gout.

OSTEOARTHRITIS OR HYPERTROPHIC ARTHRITIS.

The x-ray shadows in this variety show no atrophy, the bone is thickened. Exostoses and outgrowths at the articulating surfaces are marked. Bone mice or loose bones are to be frequently seen. The ankylosis that may come is the cause of the disability of the joint. This disease is the most prevalent from fifty years upward, slight injuries will sometimes cause a great flare up.

Second Class: These lesions are those which after injuries of the articulating surface first cause an invasion of the body of the bone.

Tuberculosis, as we have above noted, is one that does this. It is especially noticed in the bodies of the vertebrae, causing angulation and marked deformity with no bone production.

Fractures and dislocation are prone to occur at the same time when the injury is involving the vertebrae. The x-ray shadow reveals a lateral displacement, but in the cervical region the displacement is inclined to anterio-posterior. This condition may cause the destruction of the joint and then invade the body of the vertebrae, after this may come new bone formation.

CHARCOT JOINT.

This rather rare neuropathic arthritis is met with in locomotor ataxia and may follow a slight injury. There is a rather marked enlargement of the joint and the x-ray shadows reveal great irregularity and outgrowth of osseous material. There is no atrophy, but the joint becomes disorganized, the cartilage shows erosion and then new bone formation.

The failure to find atrophy and yet a disorganized joint with great bone growth would lead one to suspect a Charcot joint.

There are two other types which may be mentioned.

HEMOPHILIA.

The x-ray signs are practically the same as an infectious arthritis, there, however, is an atrophy, there is an effusion into the joint, haziness, erosion of the cartilage. In the joint itself may be a blood clot and this may become calcified.

PERTHE'S DISEASE.

This usually occurs in the head of the femur and is characterized by a flattening of the head of the bone, there is not the haziness that is seen in a joint infected by tuberculosis. The joint is not involved. The bones are not atrophied nor is the erosion of the cartilage evident. The theory of an interference with the blood supply hindering the growth. The head of the bone is inclined to bend downward upon the neck shortening Nelaton's line.

JEWISH HOSPITAL SURGICAL SPECIMENS.*

STUART GRAVES, Louisville.

In compliance with the requirements of the American College of Surgeons for Hospitals in the first class, the Jewish Hospital of Louisville has had routine gross and microscopical examinations of all surgical tissues made since February 3, 1920. Beginning at that time and ending January 31, 1922, the records show that 607 specimens have been examined and sectioned. A study of these reports reveals some things of interest and benefit. The diagnosis made after examinations may be seen at a glance at the following table:

Appendix—	
Acute	36
Negative (removed alone)	4
Negative (routine with laparotomy)	11
Diseased (routine with laparotomy)	49
Healed (so-called "chronic")	50
Obliterated, sclerosed	4
Healing (subacute)	20
Branchial cyst	1
Breast, chronic mastitis	6
Chronic mastitis and adenoma	6
Adenoma	1
Adeno-carcinoma of, without metastasis	1
Adeno-carcinoma of, with metastasis	5
Cartoid gland, endothelioma	1
Carcinoma, Epidermoid—	
Epithelioma, face	1
Inguinal region	1
Chronic cholecystitis	10
Epididymitis—	
Subacute	3
Chronic	2
Tuberculosis	1
Eyelid, simple papilloma	1
Foot, chronic ulcer	1
Forehead, hair matrix carcinoma	1
Gastric mucosa, negative	1
Goitre—	
Adenoma	1
Colloid	4
Parenchymatous	4
Mixed	2
Hemorrhoids	1
Hydatidiform mole	1
Inflammation, chronic, miscellaneous	8
Jaw, fibrosarcoma	1
Kidney—	
Hydronephrosis with abnormality	1
Chronic nephritis	1
Subacute nephritis with abscesses	1
Chronic pyelonephritis	1
Fibrosarcoma	1
Lipoma	1
Lymph Nodes—	
Lymphnoditis, acute (inguinal)	3
Lymphnoditis, chronic (cervical)	1
Lymphnoditis, tuberculous	1
Lymphnoditis, axillary	1
Lymphnoditis, submaxillary	1
Meckel's diverticulum	1
Osteo-chondroma	1
Orchitis, chronic	2
Osteomyelitis, chronic	2
Ovary—	
Abscess, chronic	1
Papillary cyst-adenoma	1
Simple cysts	49
Parotid, mixed tumor	1
Peritoneum, tuberculosis	1
Placenta, normal	1
Pregnancy, tubal	1
Prostate—	
Adenoma and chronic inflammation	4
Prostatitis, chronic	1
Salpingitis, acute	1
Salpingitis, chronic or subacute	62
Sigmoid, adeno-carcinoma	1
Sebaceous Cyst—	
Neck	1
Scalp	1
Tonsillitis—	
Acute	1
Subacute or chronic	254
Tuberculous	2
Uterus—	
Adeno-carcinoma	2
Cervicitis (or endocervicitis), chronic	28
Cervix, adenoma	1
Cervix, adenoma-carcinoma	1
Cervix, epidermoid-carcinoma	3
Endometritis, chronic	42
Leiomyomata ("fibroids")	26
Polyp	4
Vas deferens, tuberculous sinus	1

In 174 appendices, to fifty of which were attributed clinical symptoms varying from acute to chronic appendicitis, sections showed little histological change, this consisting usually of more or less fibrosis, chiefly in the submucosa, and more or less focal infiltration with lymphocytes or plasma cells in those fibrosed areas or in the muscularis. Four showed complete obliteration of the lumena with scar tissue and four removed for relief of clinical symptoms showed no histological changes at all. On the other hand, of sixty appendices removed as the routine usual in laparotomies, forty-nine showed some trace of old inflammation.

Of the breasts it is interesting to note that one only of the adeno-carcinomas removed did not show metastasis into the axillary lymph nodes and this patient was thirty-five years old. The other five had metastasized and occurred respectively at the ages of 36, 43, 44, 46 and 65. In one case a radical operation for removal of breast was done and not even simple adenoma was found in the gland itself or in the adjacent lymph nodes. No clinical diagnosis was entered on the slip accompanying the specimen. Sections showed chronic mastitis. One breast removed for "Paget's disease" showed chronic inflammation and secondary hyperplasia which put it on the border line of malignancy. In such cases as the last two particularly a frozen section should have been made at the operation for immediate diagnosis. There is no excuse in these times for removing a breast with pectoral muscles, deep fascia and axillary lymph nodes, when routine sections later show that no tumor existed at all. In examination of epididymes, two diagnoses of tuberculosis had been made when the sections revealed only chronic inflammation and the same ruled in two cases of orchitis.

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*Read before staff of the Jewish Hospital, Louisville.

In examinations of the thyroids the sections showed conditions which harmonized as a rule with clinical findings. Dividing hypertrophied goitres into adenomas or adeno-carcinomas, colloid goitres (hypo-secretion) and parenchymatous goitres (hyper-secretion), it was found that one typhoid showed simple adenoma, four were of the colloid type, four of the parenchymatous type and two of the mixed type. As a rule very little clinical data, if any, accompanied the specimens to the laboratory, but in one specimen of the parenchymatous type it was subsequently learned that the basal metabolic rate approximately three months before the final operation was +57.5, at which time the patient weighed 129½ pounds and had a pulse of 112.. A polar ligation was done shortly afterwards and three days before the final operation the metabolic rate had decreased to 44. Subsequent examinations for metabolic rate have shown that the rate has remained from 40 to 56 plus at different times with correspondingly high pulse and extreme nervousness.

Simple cysts of the ovaries were found in practically every organ removed.

Of 257 tonsils, two were tuberculous, a percentage of practically .8. The ages of these two patients were 14 and 22. In this connection it should be remembered that the routine tonsillectomy in such an institution is usually performed on otherwise fairly healthy patients, generally children. In neither of the two cases of tuberculosis was any hint given clinically of the condition, and it would seem to be worth while to know that tuberculosis existed in those two patients.

From the standpoint of the relation of malignancy to the age of the patient the most interesting case in the whole series is that of epidermoid carcinoma of the cervix uteri in a girl of fourteen. This age and the diagnosis were verified by consultation. Malignancy was found in the mucosa of the body of the uterus twice and of the cervix three times. Four polyps of the uterus were discovered, one in a case of a comparatively young woman from whom the uterus had been removed because of excessive bleeding and on whom a diagnosis of malignancy had been made.

Routine laboratory examinations of surgical specimens should be viewed by the patient, the surgeon, the pathologist, the staff and the hospital authorities in a spirit of wholesome endeavor to improve service to the patients of the institution. Honest mistakes are bound to occur. They should not be covered up, but should be utilized to point out weaknesses which may be removed in most cases by the exercise of greater care. In particular the surgeon should not assume the attitude that the pathologist is looking for opportunities to prove him wrong and the pathologist by all means should place himself in the position of the surgeon and make every effort to obtain a fair and thorough examination before making the final diagnosis. It is my rule, for example, never to send back a negative diagnosis on an appendix without cutting sections from at least three blocks taken from different portions of the organ which appear most suspicious grossly. In some cases it is difficult for the pathologist to carry out this procedure fully; for example, in tubal pregnancies I have cut as high as twenty-five sections of the specimen before I have been able to find typical chronic villi to prove the diagnosis. The same reasoning applies to the examination of specimens like breasts or prostates or tuberculous kidneys. On the other hand, when a woman of middle age, perhaps thirty-five years old, is stripped of her genital system because the bleeding induced by a polyp is mistaken for the bleeding of malignancy, or when a portion of stomach is removed for gastric ulcer or a testis removed for tuberculosis, and a series of sections do not show the pathology suspected, the service of the pathologist becomes of the utmost value to the patient, the institution and the surgeon. It is probably in such cases that the American College of Surgeons conceives routine examinations by a pathologist to be of the greatest value to the hospital.

If we were a surgeon I should never trust an assistant or a nurse to fill out the identification blank which we commonly speak of as the "brown slip," and which is sent to the laboratory with the specimen. In the first place, it identifies the specimen so that no mistake can be made. We have a rigid rule in the laboratory never to open more than one specimen at a time and to pot, tag, cork and clean off the board before the next specimen is opened. I recall an instance some time ago when a surgeon on the staff of a certain hospital telephoned me in an evidently disturbed condition of mind. The diagnosis on two specimens had been returned as showing pregnancy of the uterus when the slips sent with the specimens had stated the clinical diagnosis in each case to be "fibroids." The superintendent of the hospital had called this matter to his attention and he was greatly exercised that the microscopical diagnosis, which had been based on the presence of chorionic villi and decidua, did not agree with the diagnosis recorded on the brown slips sent with the specimens. We make it a practice to keep the original papers in all these cases for at least six months and we occasionally find this to be of great help to us. In these two cases I was able to show the surgeon the slips purporting to give his diagnosis as "fibroids." He said he had never made such a diagnosis, that he knew the woman was pregnant and that there had been very good clinical reasons why the organs should be removed. I believe that his statement was absolutely true, but I pointed out to him that possibly two minutes in each case would have saved him the embarrassment of having such a contradiction appear on the records. Since that time he has not allowed even his assistant to make out a brown slip.

Not only do the records appear more to the credit of the surgeon if he takes care in filling them out properly, but the pathologist is entitled to whatever clinical information the surgeon may be able to give him. Those surgeons and pathologists who have taken the trouble and have had the ability to study both sides of surgical pathology, clinical and microscopic, know that there are some cases in which you cannot say that black is black or white is white and that that is all there is to it. No pathologist living can always make a flat diagnosis with the microscope in some cases, but if his judgment is based on experience in which the microscopic appearance of the sections and the clinical history in similar cases have been closely correlated, he is far better able to give important advice to the surgeon.

There is only one other minor point which I would call to your attention, and that is that the stenographer who types the reports is not a linguist or an expert in hieroglyphics. Our records are all indexed alphabetically. Some times the surgeon asks us to look up a report which is months old. This happened in one case recently and the surgeon was a little impatient because we could not put our fingers immediately upon the name. We finally found it indexed under a name which began with the patient's middle initial. We were able to show his original slip to the surgeon in his own handwriting and he had to admit that the scrawl on the sheet looked like the name under which it was indexed. Accuracy and thoroughness are two points on which we endeavor continually to lay stress in the laboratory. We earnestly urge the surgeons to see that the data called for on the printed slip is written so that his time and our time may be saved on future occasions.

Finally I wish to take this opportunity to say that I have examined and diagnosed every section which has gone through the laboratory since September 7, 1914.

A DISCUSSION OF THE NEWER FADS OF OBSTETRICS.*

By Edward Speidel, Louisville.

It must be evident to those reading the obstetrical literature of the day, that the old time conservation is fast disappearing. It may be well to consider, however, what that old conservatism really meant. In too many instances, as is well known, it consisted of the doctor sitting at the bed side of the patient, letting nature drag out is weary course, without a definite knowledge on his part of the pelvic measurements of his patient, the position and size of her child and the location of the fetal heart sounds.

True conservatism of the present day consists in attending a patient with whose condition, her measurements and the position of her baby one has been completely familiarized, allowing nature a reasonable time to effect a delivery, but at the least indication of a hitch resorting to proper corrective measures to effect a delivery.

The conduct of obstetrical cases is in the hands of men who represent two extremes. One, the obstetrical specialist mostly does his work in ideal hospital surroundings with expert assistants and nurses and all kinds of up-to-date equipment at his beck and call. The other, is the general practitioner who is supposed to be able to accomplish the same things in the humblest home, without any assistant whatever.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 1921.

Accordingly in bringing these various fads to your attention, they may sound very extreme and impossible, to many of you, but it must be remembered that they are all sponsored by men who stand very high in the profession, and when we criticise and condemn a procedure, it is well to remember that a DeLee or Pomeroy may successfully do something that the general practitioner dare not attempt.

Finally there is one advantage in all of these extremes, they generally boil down to some kind of a more rational procedure that marks a distinct advance in the art of obstetrics.

The first stage of labor, has been an object of attack in various ways. Lobor is induced in the so-called delivery by appointment. This is practiced very extensively in Chicago. When the estimated time has arrived for a patient or at some more convenient time for the doctor, the lady is sent to the hospital and a large size Vorrhees bag introduced through the cervix.

Labor generally starts within a few hours and the case is satisfactorily disposed of. The method has the advantage of disposing of maternity cases at a somewhat definite time convenient to both patient and physician instead of the haphazard onset which is usual. Its disadvantages are, failure at times to initiate pains and the possibility of infection, if the bag is left in situ for too long a time.

Reed of Chicago, advises the induction of labor by the same method when the baby is post-mature.

Every one practicing obstetrics has cases every now and then running two and three weeks beyond the estimated time, with a large baby and a difficult labor at the end. Such a baby may be supposed to be post mature and if the mother had been delivered earlier when the fetus had reached maturity she would have had an easy delivery.

In addition to the menstrual data, Reed depends upon the heights of the fundus to decide when the babv is mature. One tip of the pelvimeter is placed under the upper fold of the genital crease and pushed upward until it rests on the upper edge of the symphysis. The other pole is placed on top of the fundus over the most distant part of the fetus that has been located there. Two centimeters is deducted for the thickness of the abdominal wall and the result is multiplied by two. If the result is thirty-five centimeters or more, then the child is mature or post-mature. Castor oil and quinine are then given and if not effective the Vorrhees bag is introduced.

Episiotomy or perineotomy as it is more appropriately called, is becoming quite the rage in the delivery of primiparas, and there is quiet an argument as to whether it should be median or lateral episiotomy. In median episiotomy you are supposed to make a clean cut through the median raphe of the perineum down to the sphincter and this should heal more rapidly than the ragged tear that occurs so often otherwise. The opponents of this method claim that the tear will often extend into the rectum.

In lateral episiotomy the incision must often involve the belly of the levator ani muscle and in consequence one should then have difficulty in securing good union.

The opponents of both methods claim that that a woman can often be deliverd without laceration and episiotomy does away with any attempt in that direction.

No doubt the most radical procedure is the "prophylactic forceps operation." DeLee the originator of the method realized this because he begins his paper on the subject as follows:

"The time is not yet ripe for a general recommendation of the procedure to be described in this paper but as obstetrical specialists we must lead the way in improvements in our art."

After passing through the first stage of labor in a modified twilight sleep induced with 1-6 grain of morphine and 1-200 grain scopolamine with fifteen grains of chloral and forty grains of sodium bromide per rectum in addition if needed, in order to attain a slow, complete dilatation of the cervix, then the primipara is allowed to proceed in the second stage of labor until the head rests between the pillars of the levator ani and has begun to stretch the fascia between them.

At this point the primipara is anesthetized with ether to the surgical degree, a lateral perineotomy is performed, the forceps are applied and delivery is accomplished. As soon as the child's head is born 1 c.c. of pituitrin is injected. One c.c. of aspetic egot is given as soon as the placenta is visible in the vulva.

If there is hemorrhage the placenta is removed at once, if not the operator waits five to ten minutes then inserts the gloved left hand into the vagina up to the cervix, makes pressure on the fundus with his right hand and the placenta slides out.

Every one will admit that this is radical in the extreme, but visiting physicians report that DeLee gets excellent results from this method in Chicago.

In order to make the management of the third stage of labor easier and to assure a prompt delivery of the placenta and to prevent hemorrhage, 1 c.c. of pituitrin is being given as soon as the baby is born.

One hundred patients were treated in this manner at Sloane maternity and the results compared with one hundred that did not have the injection. One c.c. of pituitrin was injected hypodermically at the beginning of the third stage in each patient, the fundus was held for twenty minutes, and unless the placenta had been expelled in the meantime, it was then expressed by the Crede method.

It is concluded by comparison with the one hundred cases that did not receive pituitrin, that it is a safe procedure, the placenta is more often expelled spontaneously and the amount of blood lost was less by at least 2 1-3 ounces for each patient.

They did not find excessive pain following in the lying in period, in fact after pains seemed to be diminished in multipara in consequence of the absence of clots in a well contracted uterus.

The most important procedure that has been brought to the attention of the profession is the Potter version and is of such merit that the rest of my paper will be devoted to it.

Dr. Irving Potter, of Buffalo, N. Y., the originator of the method delivered 1,113 women last year, 920 by this version, 400 being primipara and 250 multipara..

He does this version in every normal head presentation for the sole purpose of relieving the patient of the delay and distress of the second stage of labor.

Having visited Dr. Potter in Buffalo this summer and seen his version and having performed the version successfully a considerable number of times in hospital and private practice, I feel justified in bringing it to your attention, not for the purpose for which he uses it, as I cannot agree with him on that, but because it is a decided improvement over all other forms of podalic version.

When the cervix is fully dilated Potter has the patient placed on a table with the hips at the edge and the legs hanging down and held by two assistants in a modified Walcher position. As is well known this position increases the true conjugate diameter about 1 c.m. the utero vaginal canal becomes less curved making delivery much easier. It also relaxes the perineum and so lessens the liability to lacteration.

The patient is put under surgical anesthesia with chloroform, the vulva shaved and cleansed and the bladder is catheterized. The obstetrician of course is dressed in sterile cap and gown and rubber gloves, the glove of the left hand extending to the elbow as Potter does all of his work with the left arm.

The next step is a very important one, ironing out the perineum as he calls it. The hand is thoroughly lubricated with liquid green soap and one finger makes firm pressure downward and backward from the cervix to the vaginal outlet. This is followed by two, three and four fingers constantly repeating this movement until the vagina is completely smoothed out and relaxed.

This, of course, is done to facilitate the delivery of the after coming shoulders and head. The left hand is again thoroughly lubricated with the liquid green soap and is then carefully introduced through the dilated cervix so that it rests between the unruptured membranes and the uterine wall. It is passed up to the fundus separating the membranes in all directions, but avoiding the placental attachment.

The next thing then is to do the version and the success of the Potter version depends upon one's ability to do the next part of the procedure without turning the fetus around or in any way disturbing the relation of the fetal parts to each other and especially of tampering with the cord until the feet are out of the vagina. Potter does this with the left hand entirely and a sterile towel is wrapped around the wrist at this juncture to catch the liquid amnii when the bag of waters is ruptured.

The membranes are ruptured high up and both feet are grasped, the head of the fetus is pushed upward and to the side and the two feet are slowly brought out of the cervix and out of the vagina. Further progress is arrested for about five minutes and then with slow steady traction the thighs and buttocks of the fetus emerge from the vulva. No attention is paid to the umbilical cord as the abdomen glides out and the chest is drawn down until the scapula of the anterior shoulder is well out of the vulva. Potter then inserts a finger over the anterior shoulder beneath the symphysis and delivers the anterior arm, and then he grasps the chest and back of the fetus and with both hands turns the posterior shoulder under the symphysis pubis and delivers the posterior arm in the same manner.

This, as you notice, is directly the opposite to the way in which the shoulders have been managed heretofore.

The fetus then rides astride of the left arm of the operator, with its back towards the symphysis, two fingers of the left hand are inserted into its mouth and then pressure is made with the right hand of the operator downward and backward to aid the hand in the baby's mouth.

It will be remembered that no assistant has followed down the uterus during all this time as has been constantly advocated heretofore. The chin, mouth and nose gradually appear in the distended vulva and the baby often begins to breath in this position.

The head is pushed out a little further until the forehead distends the vulva and is then left in this position, to aid in dilating the perineum. In the meantime the legs of the baby are held up and the front of the neck massaged with the fingers in order that any aspirated mucus may run out of the baby's mouth. Further pressure is then made upon the abdomen and the head slowly slips out without the least laceration of the perineum in most instances.

Potter claims that by pushing down on the fundus during the delivery, the head is pushed down between the shoulders and the arms go up. Potter is extremely deliberate in this part of the delivery and pays no attention to the old rule that the baby must be delivered within eight to ten minutes after the umbilicus is born.

He often takes fifteen minutes for the delivery of the head, and has taken as high as twenty-three minutes in this part of the delivery. In the meantime the onlookers, seeing the baby get bluer and bluer, have made up their minds that the baby will be dead, but the outcome is generally the same.

Potter quietly lays the baby on its right tide on the abdomen of the mother and lets it entirely alone. After an interval that seems extremely long to those observing, the baby gives a gasp and in a short time cries lustily. Potter states that he is afraid of white babies (asphyxia pallida), but not of blue babies (asphyxia livida).

To the writer the most important feature of the version is the breech delivery and it can be used independently of the version. It has been my custom of late, in breech presentations, be they complete, frank or footlings, to wait for full dilation, then to anesthetize the patient to the surgical degree, iron out the peritoneum, rupture the bag of waters, bring down both feet, and conclude the delivery according to this method.

As to the version itself, it is of course clearly indicated in any case where a podalic version is deemed necessary. It has been found especially serviceable in those cases with apparently normal measurements and a normal presentation with good labor pains where there is no proper advance in the delivery. In such cases by turning the baby around, even hours after the rupture of the bag of waters, delivery can be safely attained by this method.

The delay is either due to overgrowth or premature ossification of the fetal head. The head will not mould but can safely be pulled and pushed through the pelvis if it enters with the chin pole first as is the case after a version.

DISCUSSION:

Harry A. Davidson, Louisville: I noticed that no one is in a hurry to get up to discuss this paper, and probably it is because many of the doctors present are afraid of being considered faddists. I wish to say that if there were no faddists in obstetrics there would be no progress made in obstetrics. What progress has been made in obstetrics has originated in fads and fancies of some men.

Dr. Speidel did not mention a few things which I thought he would mention. Probably he considers them as largely no longer fads, but well established procedures in obstetrical work. I refer especially to the use of pituitrin. He quoted Dr. De Lee as using modified twilight sleep in the delivery of his cases. I suppose that is an established procedure also. The fads brought out by Dr. Speidel in connection with the newer obstetrics no doubt will find their place in the future. The one that appeals to me more than any other is the ironing process of the perineum, and I believe if this process is used in ordinary head presentations many severe lacerations of the perineum will be prevented. It has been my custom for many years to iron out the perineum in head presentations as well as in breech presentations, and I should like to state that I have never seen a tear through the rectum into the sphincter ani. I have never had that in my own practice and I think these tears can be prevented. We see very little of them nowadays in hospitals, and such tears can be prevented by proper care.

The Potter version Dr. Speidel has described very accurately, has been done by Dr. Potter, of Buffalo, for some time. I was told when I was in Boston in June that they would not let Dr. Potter read his paper before the American Medical Association after he had done a number of these Potter versions. The committee thought the procedure was too radical, so they would not let him read his paper. He has for years brought this subject before the general profession and before medical societies, and now I understand obstetricians flock to Dr. Potter's clinic in Buffalo, and they all go away saying that he has wonderful results. I have spoken to a nurse who nursed under Dr. Potter, and she said there is no question about the results he obtains in his deliveries. While he delivers nearly all of his patients by Potter version, I do not think we can agree with him in that respect. However, if we have a breech presentation, or if we have to do podalic version, it would be wise to use the Potter method. But I do not think Potter version should supplant ordinary head presentations and ordinary L. O. A.'s which are present in 70 per cent of the normal cases, and this is particularly true in multiparae. You all know how easy an L. O. A. is in a multiparous woman; often she can be delivered in two or three or four hours with very little pain, without any harm to the mother or injury to the child. You also know how serious a breech presentation is in a primiparous woman. If we could use the Potter method in a breech case in a primiparous woman, many babies would be saved and many lacerations would be prevented, and this method should be used. But I do not think we are ready to adopt the Potter method for all deliveries. I would like to be quoted as being opposed to the Potter version in all deliveries. I think we ought to let a normal L. O. A. proceed as L. O. A., being on guard to prevent any complications, and especially ironing out the pernieum to prevent any severe lacerations of the perineum.

The other plan is postpartum appointment. Dr. Charles Reed, of Chicago, delivers all women by postpartum appointment and by the use of the bags. This is another fad which has some good features, but it should not be endorsed wholly. I believe every woman should be thoroughly examined when she first comes to us, especially primiparous women. I do not think any obstetrician has a right to let a woman go on month after month without measuring her pelvis with a pelvimeter. He ought to examine the urine from month to month; he ought to make vaginal examinations to see that the parts are normal. He should, as near as possible, determine the date of her delivery by the approved methods in all text books. When that time arrives he should send her to a hospital; she should not go two or three weeks over time without attempting to brings on delivery. If a primiparous woman is going over time, and the child is large, then I believe labor should be induced, and in most cases it can be easily induced by giving castor oil and quinin and very small doses of pituitrin. When pituitrin was first introduced all doctors gave one c.c.; they did not know anything else to do; they had to learn by experience. Pituitrin should never be given except in two minim doses and gradually increased, and one should see how the patient responds to the administration of pituitrin. In nearly every case you can bring on labor in this way, and it will proceed normally, and you will deliver a child that is not too big and will not cause a severe laceration in the woman.

Frank Thomas Fort, Louisville: In thinking over the different discussions I never in my professional career have seen why it was necessary to make a pathological condition out of a physiological fact. These fads and fancies have been in existence for a number of years. I remember well as a student in the University of Berlin in 1905 I went to Professor Bumm's clinic. A young woman was rolled in, Professor Bumm took a knife, did a perineotomy about midway on the right side of outlet, making a terrible incision, he then took the actual cautery, searing wound, it having begun to bleed, and delivered her to show how simple it was to make this cut and facilitate labor. I attended Mackenrodt's clinic, and he feeling symphysiotomy was in ill repute, did what he called hebotomy. He took a Gigli saw, sawed through the symphysis pubis on right side and with increased pelvic diameter delivered the woman. I followed this case up. The patient got along nicely. I do not know whether she had weakness or not of pelvis.

As long as labor is a physiological act I cannot help thinking that the less normal cases are tampered or interfered with the better it is for the women and the better it is for their offspring.

Wm. B. Doherty, Louisville: There are two points I wish to discuss, one is the duration of pregnancy and the other that of pelvimetry. One of the gentlemen stated that if the established rule of the duration of pregnancy exceeded two hundred and eighty days labor should be induced. There was a report in the Journal of the American Association a few weeks ago of a case in England where a soldier left his wife and when he returned in his absence she was delivered of a baby, 331 days having elapsed from the date of possible sexual intercourse on his part until the birth of the child. The question of the legitimacy of the child came before the court, and physicians testified that such a condition of prolonged gestation was possible, and the court consequently rendered a verdict in the woman's favor that the child was legitimate. While the average duration of pregnancy is estimated by some authorities as 273 days from the date of intercourse, for practical purposes a period of ten lunar months, 280 days, is accepted as the length of normal gestation, but we must remember there are exceptions which occur in the lower animals as well as woman. There is the probability in prolonged pregnancy of a large child, but even so I do not believe we are justified in inducing labor.

Every pregnant woman's pelvis should be examined about the eighth month. Owing to the varying thickness of the sacrum and the symphysis pubes and the elevation of the promontory of the sacrum, accurate conclusion cannot be reached, yet the measurement of the intercrestal, inter-spinous and external conjugate will tend to indicate the probability and improbability of pelvic contraction.

A living child of normal period of gestation cannot be born except by Caesarean section with a conjugate diameter of less than three inches at the superior strait. In the hospital which was on Sixth street was a dwarf nine years ago in labor. She was measured carefully by the surgeons and nurses and it was found that her pelvic diameters were such that she could not be delivered of a living baby. I suggested that labor go on, forceps was applied and she was delivered of a well developed healthy boy, who can now often be seen with his mother walking on Fourth street. There was also at the City Hospital a few years ago also a dwarf who was carefully and repeatedly measured and I was invited to be present as undoubtedly Caesarean section would have to be done. Later I was informed this little woman was delivered quietly of a healthy child without even a nurse or physician being present.

The instinct of a savage woman in her mode of delivery of the head in a breech presentation which is in accordance with the method of science can scarcely be improved upon. After the baby's feet and shoulders are born she would naturally take hold of the feet with one hand, raise them towards her abdomen and pressing the uterus with the other express the after-coming head.

Alice Pickett, Louisville: We have had the greatest pleasure in seeing Dr. Speidel do versions at the City Hospital after the fashion of Dr. Potter. I am very happy to say that these deliveries have been most skillfully and successfully done. The method is a great improvement on the old breech of version delivery. I think all of us will agree with Dr. Speidel that Dr. Potter in his development of this new technique has made a real contribution to obstetrics, probably the only true one made in the last ten or twelve years. Not many of us, however, will agree with Dr. Potter as to the indications for this maneuver. America has such a poor obstetrical record that I believe we are not in a position just now to espouse any kind of a fad, and especially one which undoubtedly would lead to disaster as this one would do in the hands of the average doctor.

Many of you probably read Dr. Polak's article of June 25, 1921, in the Journal of the American Medical Association. He says, and his statistics are based on the report of the federal registration areas in America, that in the last twenty-one years we have not reduced the death rate of puerperal sepsis one-tent of one degree. His figures on our infant mortality afford us nothing to be proud of. Indiscriminate version would certainly increase our infant mortality, as well as our maternal deaths due to infection. It would seem wisest for us to stick to the blazed trail until we have proven that we can take better care of our mothers than we have been doing in the past.

Edward Speidel, Louisville (closing): I wish to thank the gentlemen for their kindly discussions. I believe we recognize that there is lots of room for improvement in our obstetrics, and this improvement, as we recognize must come from those men that have special opportunities in this branch. We cannot afford to continue doing our obstetrics as it is done by the primitive people, as has been mentioned. An Indian woman, after thirty years of age, becomes a hag, with her uterus hanging between her legs in many instances. Even primitive people practice some of these obstetrical improvements. One of our former graduates, who has been practicing in Korea for a number of years, told me an interesting fact and that was the Korean peasant woman in labor is attended by one of the neighbors, and if there is a delay in delivery in consequence of the fact that the posterior vaginal wall holds the head back, they do episiotomy, which is a very crude affair. She takes a piece of broken glass and slits the perineum from the posterior vaginal wall toward the rectum. The instinct of these primitive people teaches us somewhat in this line.

I mentioned in my paper that these things are extreme in the beginning, and as they are practiced more and more they generally boil themselves down to something that is rational. I am glad Dr. Daugherty of Paris has learned something in that way, because he uses sun rise slumber (nitrous oxide) as a modification of the craze of twilight sleep. The twilight sleep craze compels us physicians to pay more attention to the relief of pain in the first and second stages of labor.

As to the Potter version, I would like to have the gentlemen see Dr. Potter do this version if for no other reason than to see how deliberately he delivers a baby after the hips are born. It will almost scare you to death.

I have just returned from the St. Louis meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, and one evening from 10 to 12 p. m. Potter performed this operation for members of the association and guests twice, and in each instance I would have been ready to bet $10.00 the baby would not live. It would surprise you to see how deliberately the baby was pulled out, the cord slowly attended to, after which he delivered the arms and the shoulders and after-coming head without touching the umbilical cord or without paying any particular attention to the umbilical cord, and laying the baby that did not breathe at all on the abdomen of the mother and seemingly paying no attention to it, and then after a while the child began to gasp and then began to cry. In the past we have had our mortality in versions and breech presentations because we have hurried that part of delivery too much. I have not found any member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons who is not endorsing Potter's method though not his indications for version. I cannot for the life of me see why we should take a left occipito-anterior and when we have full dilatation turn the baby around. He is not endorsed in that. His method is a great improvement. He reports a mortality of 2 per cent. He cannot afford to report things that are not true, because he is being watched by all physicians in Buffalo, and other Buffalo physicians were present at this meeting. He has personally delivered 1,130 women this year; last year he delivered 1,113. His highest mortality was last year, which I think was 6 or 8 per cent, and this year he came before the association with a mortality of 2 per cent. It is such work as that that brings about advances in obstetrics, and in consequence I think we ought to look at these things and consider them carefully and not condemn them the moment they come out.

A still more radical measure was brought out by another physician, so we are going to learn of some aggressive obstetrics. I am satisfied that after a while we will settle down to some satisfactory and rational procedures. Dr. Potter did not mention a maternal mortality of 2 per cent, but as I have said he had a 2 per cent fetal mortality this year.

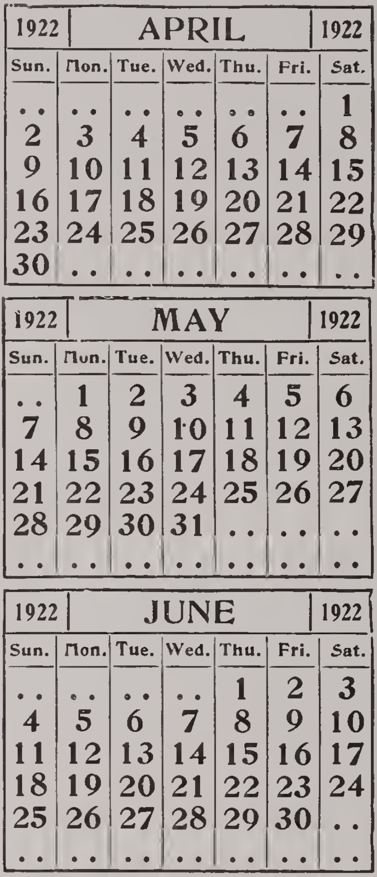
A READY METHOD FOR DETERMINING ISOLATION PERIODS OF COMMUNICABLE AND REPORTABLE DISEASES FOR RELEASE.

By IRVINE LINDENBERGER, Health Officer Jefferson County, Louisville.

States and municipalities vary in their laws regarding what are communicable and reportable diseases, but this variance is slight. The isolation periods vary more, but the following are based on the rules as laid down by the Kentucky State Board of Health.

The method used in this office determines daily what cases are to be released from quarantine. As many are school children, some others workers, the necessity for their prompt return to their calling is obvious. A map of the county, divided in the various districts, is used for epidemiological purposes. Different colored pins designate the various diseases reportable under the law, and are stuck in their proper geographical place on receipt at the office of report cards. A record is kept on a card index for graph and prompt reference. An investigation card is filled out for the inspector for use at the home, and is kept in an active file until the period of isolation is over.

For purposes of description the following diseases are used. Three consecutive months are cut from a calendar in which all the months are printed in one large sheet, Fig. 1.



1922 | APRIL | 1922

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	..	..	..	..	..	..

1922 | MAY | 1922

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
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1922 | JUNE | 1922

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
..	..	..	..	1	2	3
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25	26	27	28	29	30	..
..	..	..	..	..	..	..

Figure I.

For diphtheria, a purple track is used, and from the report card the date of onset is noted, i. e., April 2nd. This tack is placed on April 12th, signifying the first release swab is to be taken that day (ten days from the onset) carriers are included. Measles, a blue tack, fourteen days after date of onset (not the eruption) is placed on proper date. Scarlet fever, a red tack, thirty days after date of onset. Smallpox, a white tack, fourteen days after onset. Whooping cough, a green tack, eight weeks after the onset of the disease. The date of release is also put on the individual investigation card.

It is appreciated that these isolations are more or less dogmatic, especially in certain diseases. When the throat is not clear of diphtheria bacilli in ten days the tack is advanced and other swabs taken later; when suppurating glands exist after thirty days in scarlet fever the isolation period is prolonged and other diseases accordingly.

SPINAL INJURIES.*

By B. A. Washburn, Paducah.

In presenting this subject to the society I shall set forth conditions which have been recorded under the classification of different diseases. As a matter of record we know that tuberculosis in some form represents the majority of deaths.

My subject will deal with injuries to the spine where the functional disturbances have been referred to the extremities and kidneys.

There are many cases under the classification of rheumatism and acidosis that produce functional disturbances. This condition may exist in many cases, but not in the traumatic type of which I refer. Insurance statistics shows a large percentage of cases dying from joint diseases, diseases of the bone, and diseases of the lungs and kidneys. They show that the predominating occupation that keeps the spinal tendons and abdominal viscera in a constant state of vibration is caused by service in the transportation departments of railroads and automobile companies.

I have had the observation of a large number of people, who were suffering from back injuries, giving a history of long hours of automobile driving and railroading.

I ask this question: Why are there so many cases today of albuminuria, glycosuria, neuritis and lumbar myalgia? I attribute the above causes as herein set forth to the trauma of the ligaments and muscles of the spine and constant vibration to the kidneys. This constant vibration affects certain nerve plexus and sympathetic communication is distributed to muscles which function under the respective nerves.

I will mention histories of several cases, setting forth the leading symptoms in each case.

Case I.—M. C., fifty years old. Severe lumber pains referred to thigh and calf of leg. Inability to rotate spine or extend limbs. Chest pains and cough. Diagnosis: Tuberculosis. Urinalysis, albuminuria. Wasserman, negative.

The above case shows an involvement of the dorsal branches that control the rotation of the spine and the anterior crural nerve which controls the function of the rectus femoris.

Case II.—H. O., age 38. This man loses his equilibrium and falls forward when alighting from car to the ground. Severe lumbar myalgia. Inability to bend the spine backward or erect the spine. This shows involvement of the lumbar plexus and dorsal plexus nerves. Kidney findings, glycosuria. Diagnosis, tuberculosis.

Case III.—E. H., age 26. Suffers from severe lumbar myalgia, dizziness and muscle rigors along both limbs after catching train. On two occasions these conditions were so pronounced that he lost equilibrium and fell to the ground while the train was moving.

Case IV.—S. B., age 40. This man had been a driver of cars for several years. Developed severe lumbar pains, could not rotate spine or arise from chair without assistance. These conditions became worse until he is now bedfast. Urinalysis, albumin. Diagnosis, tuberculosis.

Case V.—R. B. This man suffers from severe lumbar myalgia. Pains refer to knee and heel tendons. Double vision. Cannot bend spine backward without assistance. Wasserman, negative. Urinalysis, glycosuria.

Case VI.—B. J., age 36. This man had been in the road service for several years. He developed severe lumbar pains, chest pains and cough, inability to rotate spine and dizziness. Pains referred to right limb. Inability to flex and cross the leg. Synovitis of heel tendon. Wasserman, negative. Urinalysis, glycosuria.

Case VII.—J. R., age 32. Severe lumbar pains. Chest pains and cough. Inability to bend spine backward or to erect spine. Also inability to extend legs. Wassermann negative. Urinalysis—glycosuria.

Case VIII.—C. J., aged 42. Severe lumbar pains referred to both limbs and extended to heel tendons. Suffered severe pain when walking. Required assistance to arise from chair. Chest pains and cough. Wasserman, negative. Urinalysis, glycosuria.

Case IX.—B. S., age 38. Severe lumbar pains, inability to rotate spine and to arise when seated without help. Chest pains and cough. Dizziness and blurred vision. Wassermann, negative. Urinalysis, albumin.

I call your attention to the symptoms as set forth in these case reports. The leading symptom which caused the patient to seek medical aid was inability to handle the body. I call your attention to the Wassermann reports and especially the urinalyses.

Six cases out of the ten reports show a pathological lesion of the kidney. It is evident that the vocation of these people had a direct bearing upon their cases. The persistent efforts of over tension on ligaments and constant vibration was the direct cause of functional disturbances of the kidneys. Constant vibration also causes sufficient trauma to throw the body out of alignment.

I have many more cases of this kind, which

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*Read before the Southwestern Kentucky Medical Association, Paducah.

I could report, but they are all along the same clinical lines as herein set forth. We have been looking on these cases in their early development and diagnosing them symptomatically, or, in other words, taking patients' statements of the symptoms from which they were suffering at the time they were seeking counsel.

It is surprising the large number of people who have a functional disturbance of the kidney and also those who complain of muscle neuralgia and pains about the joints, which, of course, means that the pains which they localize are referred pains and that they are secondary to other causes. It is also important to notice the increase in the number of bone cases we have for our consideration.

I attribute the incorrect position that people occupy while driving automobiles and also the constant vibration that is transferred from the hands to the chest to the development of dormant cases of tuberculosis into active cases.

All persons in the employ of transportation departments, who must alight to the ground while cars are in motion, should have the possibility of these diseases placed before them in the right manner. Statistics from the transportation departments show that as soon as this class of cases develop osteomyelitis, tuberculosis, kidney lesions, or spinal disturbances, they are transferred from their present positions and finally discharged.

Any position that will so wreck the bony structures and also stretch ligaments, causing sufficient amount of inflammation to produce fibrous thickening and periostitis is bound to affect the lymphatic system. It is an assured fact that where these conditions exist and there is an inactive tuberculosis, it develops into an active case.

I was reading an insurance claim a short time ago and two-thirds of the list, in giving cause of deaths, showed fractures, joint complications and kidney lesions. The cause of death was designated as tuberculosis, nephritis, diabetes and periostitis.

In order to maintain a high standard of physical development, it is essential that doctors advise the people that these vocations produce conditions that endanger their health.

A striking example was shown in the army by the government statistics that bone disease was one of the three predominating causes that rendered men unfit for military service. Hundreds of men in and out of the army have bone disease due to spinal injury.

Itis an error to prescribe liniments and massage for a patient that should be in the hands of a laboratory technician, roentgenologist and surgeon.

There is a large percentage of these cases that must rely upon the surgeon for nephrotomy and laminectomy for relief.

I call your attention to the physiology of the spine. There is very little movement between each vertebra, but collectively it is very flexible. The greatest amount of mobility is at the junction of the dorsal and lumbar segments, and next at the junction of the cervical and dorsal segments. This explains the clinical symptoms found in the history reports setting forth the complications following spinal injuries.

The spine is supported by the surrounding ligaments, and the most frequent injury occurs in this kind of a joint, by what is known as a *sprain*. When you consider that the spine represents several joints, you cannot attach the same significance to a sprain of a single joint that you do a sprain of the spine, because a spinal lesion will be in keeping with the number of vertebral segments involved, which likewise sets forth its symptomatology. A traumatic spine not only develops local symptoms, but complicated symptomatology, because it indicates not only a sprain of ligaments, but also the involvement of the cord, manifesting anesthesia, hyperthesia, excitability, visual disturbances and marked changes in nerve reflexes.

I again call your attention to the history reports herein stated. A traumatic spine is caused by a sprain of the spinal ligaments and a concussion of the cord, which must be accorded a place among *organic lesions*. A jarring or shaking of the cord, caused by sprained ligaments, causes cells to undergo a change, which modifies its function, hence our kidney diseases, i. e., *functions and pathology*.

Fracture of the spine must not be looked upon like that of a fracture of the femur, because fracture of the spine with a dislocation is entirely different from fracture of the spine.

When we speak of fracture of the spine we mean a condition of over tension so great that the spine is just at the point of breaking. The lesions, i. e., fracture of spinal segments and concussions of the cord in a varying degree from a local injury to crushing of the cord, which produces complete motor paralysis, develops symptoms, in a varying degree, set forth in the histories previously mentioned.

Fracture dislocations promise so little, even after laminectomy, that prognosis can be estimated only by the return of normal reflexes. Most of these cases develop permanent lesions with bad prognosis, even after removal of bony fragments and a normal aligment, which releases the tension on the cord.

Persons in the service of railroads and automobile companies should have an examination made of the spine and kidneys. This examination should be thorough, giving the patients laboratory findings of the kidneys and an x-ray of the spine and joints. If complications exist, they should be advised of proper treatment and care they should take of themselves. The ones who disregard these conditions only await the development of an active disease which will destroy life.

In closing I ask that you remember the function of the dorsal and lumbar nerves in these spinal cases. A fracture at the level of the twelfth dorsal will cause a paralysis of the sacral plexus. A lesion at the cord of the eleventh dorsal will cause paralysis of the lumbar and sacral plexus. Remember that a muscle pain is a referred pain in most cases. You should investigate because there may be serious complications following this condition. Don't advise the use of ointments and severe massage around joints, unless you have a functional disturbance following an acute disease. Remember that we have laboratories and x-rays to assist us in this class of spinal injuries.

RADIATION IN THE FEMALE PELVIS.*

By D. Y. Keith, Louisville

There have been many eras in the history of gynecology in which the principal treatment was either surgical or medical. Medicine reigning supreme for centuries then followed by some definite advance in a mechanical or surgical way which became well known in certain localities to be so completely forgotten that in a score of years it would be heralded as a new procedure.

From the inception of aseptic surgery gynecological surgery has made a steady advance. So much relief from excellent surgery was obtained that most any sufferer would willingly seek relief from any surgeon or gynecologist, The true gynecologist was and is always seeking something better, and a gynecologist is credited with having been the first to use radium in carcinoma of the cervix uteri.

So easy has relief been obtained in many diseases of the female pelvis by the judicious use of radium and the Roentgen-ray that a new era has arisen in gyneclogy until it can no longer be said that gynecology is a surgical art. The medical treatment, particularly the use of the endocrines, has so divided gynecology that cases are at present either medical, surgical, or a combination of the two. As radiology is neither a definite branch of medicine or surgery it seems well adapted to gynecology. We as roentgenologists and radiologists are in a very unique position for the accomplishment of great good for the cause of gynecology. For on what is done by us in the next few years by close co-operation and association with the gynecologists depends the future welfare of gynecology. We trust that none of you will do anything but your best in the accomplishment of these results, which in our judgment are to be accomplished along both the radiographic and radiotherapy lines.

Just as it has become generally known and accepted by most surgeons[1] that radium is the more preferable agent in carcinoma of the cervix uteri whether seen early or late in the disease, many of these same surgeons are beginning to accept radiation as the easier and safer method for relief of fibroids,[2] and gradually extending therapy to fibroids of any size (Schmitz, personal interview.)[3]

We have treated one large multinodular fibroid that completely blocked the pelvis filling the entire abdomen so completely that the tumors were immovable so great was the intra-abdominal pressure. There was one pedunculated fibroid nodule the size of a foetal head presenting at the left costal margin. All of these tumors have completely disappeared and the patient remains in excellent health today, nearly two years after the treatment was begun.[3] No treatment has been given since March 1, 1921. The application of radium and x-ray were both used in this case, and we feel there is little doubt that great benefit was obtained by both and it is very doubtful if a cure could have been obtained without the use of both agents. The abdominal measurement of this patient was forty-eight inches in circumference and a tricuspid and aortic obstructive lesion, preventing even a thought of surgery. If a fibroid of this size can be relieved by radiation, why limit its use to small uncomplicated fibroids.

Our duty lies in two definite lines. 1. Radiography of the pelvis or pelycography. 2. Radiotherapy which includes radium and the Roentgen-ray.

PELYCOGRAPHY.

Pelycography, the name given by Van Zwaluwenburg to inflation of the pelvic cavity with gas and the use of stereoscopic plates, is in its infancy. Van Zwaluwenburg with the association of Dr. Reuben Peterson[4] has been of great service to radiology and gynecology in the work he has so well begun.

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*Read before Texas State Roentgen Society, May 8, 1922.

Rubin,$_6$ of New York, by inflation of the abdomen through the cervix has done a great work toward testing the patency of the Fallopian tubes. We feel there is little doubt all of us should be very optimistic on these procedures, as it will unquestionably prove as invaluable as the pyelogram, the ureterogram and the cystogram have as a diagnostic agent in urology.

The wave of enthusiasm in pneumoperitoneum, which includes the pelvis, has past and we believe and trust the wave of pessimisim that usually accompanies any unusual procedure is also past, and we shall begin to tread on that common ground of realism in which great good can and will be accomplished. A few deaths occuring in probably unwisely selected cases is no reason for its abandonment. It is certainly as illuminating in some instances as exploratory laparotomy and certainly does not carry the same risk as to life, to say nothing of the morbidity that will occasionally occur in the best surgeon's hands. The morbidity referred to is post-operative adhesions that occur in the best surgical families, which, as you all know, no definite cure can be expected.

We know you are all familiar with the work that has been done along diagnostic lines of the pelvis in a radiographic effort and trust that those of you who are qualified or are associated with gynecological surgeons, will continue to be optimistic about this work with a frequent citation or correlation of your results, for in this way we can get a definite knowledge from the experience of many workers as to what can and cannot be observed and demonstrated by pelycography.

If there is one field in radialogy in which we should be optimistic, it is in illumination of the disease of the female pelvis. All of you have more than once been called upon to make either a negative or a positive diagnosis of pregnancy in the early months of gestation, usually from the sixth to the tenth week, and had to admit that the result of your efforts were either in doubt or absolutely valueless.

With pelycography your efforts would have been rewarded, a positive diagnosis made, and friends made of the surgeon and physician. If I had one word to say for this diagnostic procedure it would be optimism.

RADIOTHERAPY.

For a complete realization of our responsibility to mankind in the present development of radiation we should profit by the experiences and observations of former workers in medicine along surgical lines. Particularly is this true with the high voltage apparatus, where we are using 200,000 volts or more, for it would be a great blow to roentgenology for our wave of enthusiasm to be followed by pessimism as has occurred many times in surgery when some brilliant surgeon by some special technic has carried the profession almost off its balance. We refer as an illustration to Lane and his brilliant surgery of the colon and of bone plating. There have been many sufferers from both.

All of us have seen and will continue to see occasionally some one who is suffering with morbidity as a result of some of the teachings of brilliant surgeons. To us many of these cases of morbidity are even worse than mortality. Let us then be cautious, careful, consistent and conscientious in our conservatism until we find where we are, lest a wave of pessimism follow on the good work that is already being done. To prevent a repetition of the three years of Roentgen history so well divided by MacKee$_{12}$ into optimism, pessimism and realism, we must go cautiously in our work in using radiation externally, internally and interstitially lest we over-ray rather than under-ray and find our patients are cured of a malignancy though suffering from morbidity following too much radiation.

We know all of you have seen the termination of the cases that were subjected to removal of both ovaries, and no one is able to estimate the amount of morbidity, suffering and mortality caused by this much exploited operation of a decade ago. The same holds true with the wave of optimism from appendectomy which was to cure mankind of most of the abdominal complaints.

If the high voltage radiation so often spoken of as the German technic was the Wertheim treatment of roentgenology, how much more careful ought we to be in the treatment of the female pelvis for malignancy when we are giving or are expected to give radium to the uterus, cervix, or to the broad ligament by a vaginal pack and x-ray by as many portals of entry as are justifiable.

We should all know our limitations or the limitation of our apparatus which can be measured and should be checked by as many methods as are practical. As to which will prove to be the most practical only time will tell, and we are today laboring or will labor through the same obstacles that we did when we were dealing with Pastille's photographic densities and Koenbeck's strips, etc., of a few years ago at the birth of the Coolidge tube.

For measurements we have the double milliampere meter which Coolidge$_7$ tells us "at 200,000 volts maximum with as much as 0.2 millimeters of copper filter, different high voltage tubes differ but little in output, the average deviation from the mean in the series of twenty tubes being only 1¼%, with the Universal tubes only about .3% using 3 millimeters of aluminum.'' Where no filter is used ''there is a marked difference in the output,'' which he believes is due to the bulb thickness of the tube. Coolidge also says for medical application it looks much safer to judge x-ray intensity and quality from sphere gap and milliampere meter measurements of the electrical energy put into the tube rather than from the direct measurements made with an ionization chamber. Even with voltages from a transformer or an induction coil the resulting radiations differ in quantity and quality by scarcely more than the experimental error when the energy input is controlled by a standard sphere gap and a milliampere meter. Shall our dosage be measured by sphere gap, milliampere meters, filters and distance or shall it be measured in an ionization chamber or both?

As we all know, it has been difficult to get ionization chambers, electroscopes, etc., for measurement, and when we did none of these were calibrated to skin dose, all of which has to be worked out by the medical man. As you know, very few of us have the same definite idea as to what is a skin dose or an erythema dose, some relying on an epilation dose, others on a faint tanning short of epilation and others on a complete epilation with destruction of the superficial areas of the skin, in other words, a blister. Until we arrive at a definite and accurate plan of skin dosage we will be going through the same difficulties as we are at present and have in the past experienced in the early days of the Coolidge tube.

Shall we attempt to determine the lethal tumor dose as suggested by Francis Carter Wood[9,10] with which we are sure you are familiar. Might it not be possible to so properly standardize our technic that we could easily differentiate; first, between a stimulating and an inhibiting dose to tumor cells; or second, tell the difference between the dose necessary to inhibit or kill cancer cells, and third, that which would cause serious injury or death to the patient, as we know the difference between these may be very small. An exact surface and depth dose is necessary. This is quite difficult at present for the lack of suitable instruments, as none of them are calibrated in a standard skin erythema. Wood insists that the best way to calibrate this is by the use of a mouse tumor of constant and tested biological qualities or resistance. With a tumor that has been tested through so many generations and over a period of five years' time, it would be easy for us to test the dosage and compare the dosage with a dose of radium as the radium dose on tumors of this type has been tested. If our work is to become so highly technical that it requires the full time of a physicist, of which there are very few available, very few of us will be in a position to be of great service to our community. For any method to be practical it should be a method that can be carried on by any man with average knowledge and with average ability and experience along that particular line. This will hold true whether it be surgery, medical appliances or radiotherapy.

With our present knowledge of the dosage of radium to a lesion superficially and the percentage of radiation[11] reaching different depths, it seems we can soon arrive at a definite erythema dose as well as a deep dose for our particular apparatus; then we will be able by ordinary practical measurements of a tumor within the pelvis to deliver any percentage of an erythema or depth dose that we desire to give. If this can be done, which with our present knowledge and past experience we should all be able to do, we will have made a great step toward a constant dose in any condition. What we have then to deal with would be to determine by our experience or the type of cell described by the pathologist as to what is the depth dose and the accurate measurement of the tissue through which our radiation has to penetrate to reach the tumor, an equation which can only be reached by experience and judgment.

We should also by experience learn the different absorptive powers of different tissues. In a fat patient we should expect more absorption per centimeter of tissue of the rays than from a thin or average size patient.

A man's success will then be measured by his ability to judge the density of the material through which he expects to penetrate and his ability to accurately measure mechanically or by palpation as to the tumor depth in centimeters and the thickness of the tumor in centimeters. This will place the radiologist on the same basis as the surgeon, plus his medical training and surgical judgment, which determines the man's ability from a surgeon's point of view.

May we not all be expected to do our best, be recognized as real physicians as we are, and place radiation therapy on a basis it so justly deserves. If we fail by being unqualified, by over-enthusiasm, or by super-radiation, gynecology and radiation will suffer accordingly.

A few of the unpleasant late results in too much radiation are being reported, unquestionably others have occurred that are unreported. We refer to the breaking down of tissue as long as two years after radiation, the area seemingly being perfectly healed for months. Our word of warning at present would be to under-ray rather than over-ray.

Personally, we know of three cases in which the immediate results were pleasing only to be followed by disaster. One a supra and infraclavicular metastasis that is at present having a disintegration of the lung substance. There was very little skin change. A voltage of more than 200,000 was applied for several hours. From a layman's point of view one case of this type will prevent many from coming for radiation.

McCandless$_8$ reports a death without skin changes due to deep tissue change. The same writer reports deep muscle induration with possible abscess as one of the latent effects with negligible skin changes.

As an illustration of results without great amounts of radiation or even high voltage, we wish to report one case of adeno-carcinoma of the sigmoid, surgical diagnosis with microscopic proof, that is well, enjoying the best health of her life and free from any evidence of disease two years after treatment was instituted. Had this patient received an application of the penetrating short length rays a brilliant cure would have been reported ere this time. She has received only three series and two preventive doses.

The technic used was as follows:

Voltage 110,000, sparks gap 9 5-8 inch, filters six aluminum, glass and leather, anode skin distance 8 inches, time 12 minutes, using three portals of entry anteriorly and three posteriorly to the pelvis.

Second series one month later. Third series two months later. Prophylactic series four months later and six months later, using the same technic except the time factor was eight minutes instead of twelve.

The patient was in my office May 1, 1922, and in excellent health, free from any symptoms.

Fluoroscopic and plate examination of the colon was negative for any suggestion of stricture.

If we have prevented one of you from having a single disastrous result, we feel our efforts will have been well paid. May we go cautiously, earnestly and conservatively in our work, and there is little doubt if these points are kept before us that our optimism will not carry us off our balance, and the work of roentgenology in gynecology will in a short time reach its proper sphere.

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FOLLICULOSIS OR TRACHOMA AMONG SCHOOL CHILDREN.*

By J. W. JERVEY, Greenville, S. C.

That there exists a problem, at least in the South—and it will grow, for is it not the evil thing that is contagious and infectious and groweth apace?—that there exists a problem which must be settled and settled right, and which has to do with the welfare of our children's eyes, and therefore with the welfare of our country, is the *raison d'etre* of my appearance before you this evening, in response to your very kind invitation. And this invitation is the more appreciated because this grand old state of Kentucky, the mother of so much that is pre-eminent in all the virtues, attributes and accomplishments of civilization and society, harbors within her borders what is known in modren *parlance* as a "focus of infection" of this very problem; and there are many here far more capable than your essayist of evidencing their talents in the discussion and elucidation of this—may I say, factitious?—question. It must be confessed, however, that if the evaluation of the problem were left to me it would be characterized as an hypothesis rather than as an apothegm, but since there are gentlemen and scholars of good weight and measure who think at variance herewith we have, by that token, at least a good excuse for the exercise of the great and glorious intellectual sport of argument.

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*Read by invitation before the Jefferson County Medical Society, May 2, 1921.

THE "PROBLEM."

The "problem" may be briefly stated: "Does trachoma, in epidemic form, exist among the school children of the South?" The question is not meant to apply to those localities in the moutains of Kentucky and East Tennessee, where, every one, I believe, is ready to admit real trachoma does exist. In recent years the brilliant investigations of your own—may I not say, *our* own?—Stucky, of Lexington, have proved its existence there; and fifteen or twenty years before him Norris and Oliver had pointed to its presence there for many known years prior to their own writings. The question is meant to apply to the South in general, then, exclusive in these localities.

"Does trachoma, in epidemic form, exist among the school children of the South?"

The United States Public Health Service answers in the affirmative. A majority of the best known and ablest ophthalmologists of the South—and I believe I speak by the card—answer in the negative. I have their views by word of mouth and by written correspondence.

Obviously, it is of the greatest importance to our people to know which answer is right. If we have among our school children a malignant contagious disease of the eyes it is of supreme necessity that we recognize it and take measure for its control; but, if, on the other hand, no such condition exists, it is equally of obvious importance that we know that fact in order to protect the eyes of our children from ill-advised interference, which itself is not without danger to the ocular structures.

By inference from the foregoing asservations your essayist is committed to the necessity of showing:

(1) That certain responsible persons have proclaimed the existence of epidemic trachoma among school children in many parts of the South.

(2) That these authorities have, wherever permitted to do so, put into execution certain drastic measures, which they claim eliminate or control or render innocuous these cases of trachoma.

(3) That reasoning, logic, the known principles of epidemiology and the experience of well-known professional observers all point to the inescapable conclusion that epidemic trachoma does *not* exist among the school children of the South.

(4) That even if this condition did exist, the measures adopted for its control would be hopelessly inconsequential and inadequate for the purpose intended, and are themselves not without danger to the intergrity of the ocular structures.

(5) That what does exist in from two to six or more per cent of all school children in the South (and indeed everywhere) is the harmless conjunctival folliculosis, a condition mistaken, almost from time immemorial—though usually by inexperienced observers—for the dangerous, malignant and contagious disease known as trachoma.

(6) That the differentiation of folliculosis and trachoma in our country, in the vast majority of cases, presents no diagnostic terrors to the trained observer; and this is especially true where the epidemiology, rather than the individual case, is under consideration.

THE "SYSTEM."

I confess to a sense of embarrassment in my mission. I am not a Bolshevik nor even a socialist by instinct or desire. Not even have I the slightest wish to be a "reformer"—as "reformers" go. Hence, I do not like even to seem to be attacking or criticizing a branch of our government. But the United States Public Health Service has brought about this *contretemps,* and the fact remains that the medical profession, individually as well as collectively, owes a duty to the people. The point needs no argument. It is an aphorism.

Our principal trouble is that our system is wrong—I mean in the functioning of public health offices. Our state public health officials hold berths that are more or less political. They are responsible for whatever happens to the people of their respective states. A question of serious import arises. It must be settled to the satisfaction of the constituency. There is a difference of opinion among the physicians of the locality or the state at large. The state board of health is not composed of specialists, but the question must be decided and no harm must come to the public—otherwise the state health officials have their heads—and their bread and butter, or their reputations—cut off. What is the answer? Why, the United States Public Health Service. Call in this service, let it decided the question; and then whatever happens the state health officials are safe. They "pass the buck" to the prestige of "Uncle Sam," and retain the confidence of their communities. This is what has happened in many Southern States in connection with the trachoma problem. This is what occurred in my own state, South Carolina, about a year and a half ago. It took three months of hard work to convince our state board of health that we were not face to face with a trachoma epidemic among school childen. In the meantime, however, they had excluded from school (and spoiled for these children a whole school year) those who were designated by representatives of the United States Public Health Service as being trachomatous, numbering scores in one small community, and permitted them to return to school only on the alternative of allowing their eyes to be operated upon.

Such is the curious credulity of state public health officialdom. The latter actually believed—on the repreesntation of government representatives, it is true—that the mere performance of the simple procedure of "expression" could cure and render innocuous thenceforth one hundred per cent of what they said they believed to be trachoma.

Most of the condemned children were operated on, for it cannot be denied that the charm of a uniform or a federal commission has due weight upon the parental electorate; but many, at the same time, declined operation. That was a year and a half ago. The matter was dropped. There has been no more "trachoma" in that community. If these facts are true, is there any sane ophthalmologist who will argue that there ever was a trachoma epidemic in that locality.

THE RECORD.

Very much the same situation, with various modifications, and notwithstanding the protests of accomplished ophthalmologists, has been developed in many other communties—in North Carolina, in Alabama, in Texas, in Florida, in Missouri, in North Dakota, in Virginia, and in your own Kentucky and your city of Louisville, and all within the comparatively recent past. Doubtless "there are others."

Only some six or eight years ago a trachoma "survey" was made of the Southern States by the United States Public Health Service. The report is a matter of record. In every state visited, excepting only South Carolina, trachoma was reported as existing in the schools that were inspected in from two to six per cent of the children examined. This, of course, is the practically invariable proportion of incidence of marked folliculosis among school children, as can be easily demonstrated by any one who will take the trouble to look for it. It exists in the same way and for the same reason that a more or less fixed proportion of enlarged tonsils and adenoids may be fonnd among children.

Why South Carolina was so slighted in this survey is another story, and it need not be told here. But it is certainly very strange that this coincidence of incidence, so to say, escaped the keen ophthalmologic discrimination of public health officialdom.

Only school children were examined in these surveys, because, as the officials naively remarked, the schools were the most convenient places of congregation. So that all of the cases of trachoma that were found were in children. But not only is marked folliculosis found only in children; it is *invariably* found in from two to six or more per cent of *all* children, which is the very percentage in which this "trachoma" among children is officially reported.

Furthermore, I have investigated the surrounding circumstances in many of these localities in which this dread disease has been found—in North Carolina, South Carolina, Alabama, Florida and other states, and I find, curiously enough, that no adults (or a negligible few) can be found who are even suspected of having trachoma. Yet all children live in houses with adults, and real trachoma is no respecter of persons or ages.

It is strange to find, too, as I have done, that these trachomatous children are seldom —and evidently only incidentally—deskmates or benchmates. And it is certainly interesting to note, as I and others have repeatedly done, that one hundred per cent of these children with supposed trachoma have enlarged tonsils and adenoids and often other forms of adenopathy. And, still further, it is of at least some interest to find that almost, if not quite, one hundred per cent of these cases have refractive errors.

THE INCIDENCE.

If these facts—and I assert and maintain they are—what is the inevitable inference? Why, simply and evidently and only that the "granular conjunctivitis" commonly seen in children, unaccomapnied by any similar phenomenon in adults of the same community, is an expression of the lymphatic diathesis, produced and stimulated by some irritant factor, usually eyestrain, but often by bacterial, chemical or physical insult.

It is evident, of course, that the specific irritation of the trachoma infection may produce a follicular conjunctivitis in a child of lymphatic habit, just as any other irritant may do, and these are the only cases in which a confusion of diagnosis should exist. And even here it is only a matter of a few weeks before the characteristic signs of true trachoma will or will not appear to clinch the diagnosis.

Weeks, in his book on "Diseases of the Eye," says a matter of a few weeks will suffice to determine the diagnosis. Dr. McMullen, who, as we all know, is widely referred to in this country as an expert on trachoma, testified in a North Dakota court that after three to six week's observation of a doubtful case he could make a positive diagnosis. Fuchs, Axenfeld, Morax, Boldt, Treacher Collins, Henry Elliott, not mention only a few of practically all authorities who have at times literally lived amidst trachoma, point out that we must have true papillary hyperplasia and cicatrization of the conjunctiva before a diagnosis of trachoma is to be made; and McCallan, in his monograph on "Trachoma And Its Complication in Egypt," asserts that pannus is an early symptom of the malignant disease; while Axenfeld would like to apply to it what he considers would be the characteristic name of "cicatricial conjunctivitis."

It is further evident, then, that where we are confronted with a so-called "granular conjunctivitis" among school children, and weeks and months pass without the manifestation of any of the characteristic signs of trachoma (such as true papillary hypertrophy of the conjunctiva, cicatricial formations or pannus), or without any similar phenomena in adult eyes at the same time, we are certainly not dealing with trachoma.

THE CONTROL.

As a matter of fact and record, it is true that in North Carolina and North Dakota in 1918, in Alabama in 1919, in South Carolina and Florida in 1920 (and, I am informed and believe, in other places; but of these mentioned I have personal knowledge) the diagnosis of epidemic trachoma among school children was made by representatives of the United States Public Health Service. The various and respective boards of health were advised to require that the affected children should submit to operation for the cure of the condition as the alternative for exclusion from school. Having submitted to a simple operation the children were to be regarded as safe to return to school. The boards of health acquiesced, and many children were operated on, but many at the same time refused to submit.

There has been no further outbreak of trachoma, up to this writing, in any of these localities. To the trained ophthalmologist, to the trained sanitarian, indeed to any logical mind, what is the inevitable conclusion? Why, only that real malignant, contagious trachoma never existed there.

In the course of a questionnaire sent within the past year to well-known Southern oculists and to other recognized authorities in this country and Europe, including R. H. Elliott and Treacher Collins, of London; Morax and Landolt, of Paris; Meller of Vienna; Sattler, of Leipzig; Hirschberg, of Berlin; these gentlemen all expressed themselves, and mostly very emphatically, to the effect that *none* or but *few* cases of real trachoma, even in mild or early form, could possibly be cured and rendered sterile, so far as trachoma was concerned, by the simple single operation (by whatever method) of expression of the hypertrophied follicles. How any one who has, to any extent, been up against the real article (if I may lapse into the vernacular), can assume or think or believe otherwise transcends the admittedly limited confines of my comprehension. And yet, there are those who do, and this is why we have the problem with us today. *"Quot homines, tot sententiae."*

I do not believe there is a single authority, among those we are accustomed to regard as authorities, who fails, in his writings, to iterate and reiterate the stubborn and ever-present fact that the cure of trachoma, by whatever method, is not a matter of days or weeks, but months and years—and then some!

Axenfeld and others even stress the point that no case is ever really cured, since an eye once infected with trachoma can never be restored to normal forms and functions; for it can never, in any conceivable circumstances, escape without some degree of permanent damage from the inevitable and diagnotically indispensable trachomatous lesion. This lesion consists of connective tissue cicatrices in the palpebral conjunctiva, and it is a corollary fact that, excluding previous trauma, any eye showing this cicatricial phenomenon is positively trachomatous.

CONTAGIOUSNESS.

It is, of course, as true as it is trite to say that an eye can only become trachomatous by means of direct inoculation from a trachomatous eye. Neither folliculosis nor anything else can evolve into trachoma. It is conceded by all, I believe, that trachoma is not an airborn infection, hence it must be transferred through the medium of a discharge. Many or most of the school children said to have trachoma have no discharge; they can, therefore, hardly be a menace to others (or at least only potentially so) even if they really have the disease.

This idea was the philosopher's stone that coaxed the state board of health of South Carolina into the path of wisdom. The official rule of that body, in regard to contagious eye disease among school children, now is and will likely remain for some time, to the effect that any child with a purulent discharge from the eye shall be excluded from school until such time as a competent physician shall certify that the discharge has ceased for a period of at least five days before the return of the child to school.

It is, of course, well known that trachoma is no respecter of the ages of its victims. It is noteworthy, however, that Fuchs, Swanzy and other experienced observers regard the disease as occurring preferentially in adults.

The lamented Ray, of Louisville, in 1916, after referring to the fact that conjunctival follicles in children, disappearing without treatment and without leaving any pathological changes in the conjunctiva, proves fatal to the theory that they are the first stage of trachoma, adds that we rarely see trachoma in children except in families where adult members are suffering from the same condition.

It is obviously rather illogical, then, to discover and proclaim the presence of an epidemic of trachoma confined exclusively to school children, with no adults, or a negligible number, in the same community showing the disease. This single fact of epidemiology is therefore sufficient to clear up the diagnosis, even without a minute examination of the clinical manifestations. This is a highly important fact, which should never be lost sight of.

There is another very suggestive truth which might well be considered. Epidemic trachoma is notoriously and necessarily a disease of filth and sloth; of unclean personal and community habits. I believe no one has ever seen or heard of a trachoma epidemic in any modern, civilized and reasonably well ordered locality. To *allege* that such an epidemic exists is, therefore, an insult to the accused community; to *prove* that it exists is *prima facie* evidence of the guilt of that community, either in its ignorance of the amenities of social intercourse, or in its possession and practice of effete manners and morals.

OPERATIVE CONSEQUENCES.

Sometimes I have been asked if any harmful results accrue to the eye following any of the various methods of follicular expression. Unquestionably, yes.

It is difficult to understand how any one with a reasonable grasp of the principles of physiology and pathology can doubt for a minute that the trauma incident to any form of expression operation on so delicate a tissue as the conjuntiva is necessarily productive of pathological consequences. Yes, I have seen them myself. Listen to Alger, of New York, who has had a large and prolific field for observation.

"Operative treatment does not lessen the supposed danger of contagion, but rather increases it; does not guarantee against recurrence, nor render unnecessary the routine of local applications, and very often causes permanent deformities in the lids."

Listen to Stucky, of Lexington, discussing a paper by Dr. Doyle, in 1918:

"I believe that a great deal of harm has been done by the operation of expression. I have seen the horrible cicatrization following."

It is unnecessary and would be supererogatory to multiply references to the same point

UBIQUITY OF FOLLICULOSIS.

Having had the opportunity of examining the cases in South Carolina which had been officially diagnosed as trachoma, I ventured to disagree, and advised the state board of health that I would undertake to demonstrate the same condition in the same approximate proportion in any((or *every*, if it wished) school in the state.

With the kind assistance of two or three professional friends this fact was proved in three widely separated sections of the state—the mountains, the coast and the midlands, and also in the schools of Augusta, Ga., at our western border. About 12,000 children were examined and between four and five hundred cases of marked folliculosis (all with hypertrophied tonsils and adenoids) were discovered. These cases were clinically exactly similar in every way to the officially diagnosed trachoma cases, and occurred in the same relative proportion to the whole number examined. (I am showing you tonight a few photographic slides taken at random from among these sacess.)

This same proportion of folliculosis (Alger, and later Oertel, suggested calling the condition "conjunctival adenoids," and recently, in personal conversation, Stucky has proposed calling it the "adenomatous conjunctiva")—this same proportion of marked folliculosis has for many years been known by careful students of ophthalmology to exist among all children, everywhere, whether in or out of school. I have myself observed and recorded this fact.

Just why official observers choose to designate identically the same case, in identically the same proportion, as trachoma, is a question whose solution I must beg to be allowed to leave to a perspicacity more astute than mine. And I must decline to allow the fact to be overlooked that wherever these cases have been officially operated on, or wherever they have been left alone after being discovered (and, of course, where they have not yet been discovered—which is, broadly speaking, everywhere else), there has not been yet recorded the outbreak of a single real, *bona fide*, "honest-to-God" trachoma epidemic.

Of course, it may be claimed that wholesale operation stamped out the epidemic in certain localities, and whoever likes to believe that to be possible in real trachoma is "good and welcome" to so comfortable a credulity. Life is too short to try to disillusion the optimist; though it might not be amiss to hint at the possibilities of more careful study.

But what are we to say about instances happening one or two or three or more years ago (such as in the case of the Montgomery, Ala., school children), where many cases were officially diagnosed as real trachoma; the same drastic procedures advised but declined; and still no outbreaks of trachoma have appeared? Not always, hitherto, has the hand of God been stretched forth to save recusant sinners from destruction. Yet from the viewpoint of the trachoma believers' orthodoxy this blessing is daily being vouchsafed to community after community scattered over the country. In fact, all communities are saved whether their children are operated on for trachoma or not.

Having arrived safely at which point I claim the privilege of pausing long enough to put to you, with all the seriousness that such ancient humor can command, that question which you must now clearly see is preeminently unavoidable: "If so, why not?"

CONFUSION OF TERMS.

It is appropriate to speak here of the efforts of French ophthalmologists to clear up the confusion existing in many minds as to the difference between folliculosis and trachoma. They realized that, in its derivation, the word "trachoma" meant nothing more nor less than "roughness," and was not distinctive of any pathological process. In order to contrast the essential difference of the two conditions they invented the term *"trachome folliculaire"* (follicular trachoma, meaning simple follicular hypertrophy of the subepithelial lymphoid element of the conjunctiva—folliculosis) in direct contradistinction to what they termed "trachoma papillaire" (papillary trachoma, true papillary hyperplasia of the conjunctival substantia propria —true malignant trachoma).

The term "follicular trachoma" is unfortunate, for the word trachoma to many minds spells trouble and a lot of it, and the phrase has without a doubt been used to the confusion and uncertainty of public health officials and others who should know better. It is a hybrid term (and, therefore, barren— of useful meaning), and disingenuous, and should be abandoned.

SUMMARY OF DIFFERENCES.

I wish indeed that there were time (and on your part, patience) to go into a detailed comparative consideration of the two conditions, folliculosis and trachoma. But that is impossible here now, and I must content myself with a brief summary reminding you of the essential differences.

Strictly speaking, conjunctival folliculosis is not a disease entity. It is a symptom, pure and simple—an expression of various causative factors.

Trachoma, on the other hand, is a syndrome, complete in itself, and due to a single specific cause, in the belief of the word's best authorities, and is, therefore, a disease entity.

For the purpose of this discussion, however, it is convenient to regard folliculosis as a manifestation of a syndrome, and a manifestation so important in this connection as to warrant our tentative consideration of it as a unit of morbidity.

Folliculosis is a subacute or chronic affection of the conjunctiva, with little or no inflammatory reaction; occurring in children and young adults of lymphatic temperament, without regard to present social or physical conditions; caused by any one or more of a variety of irritant factors; characterized by a varying degree of adenoid hypertrophy of the subepithelial lymphoid elements of the conjunctiva, of an essentially benign nature; manifesting but slight subjective symptoms or none at all, and invariably tending, after a longer or shorter period, to spontaneous and complete recovery.

Trachoma is a chronic inflammatory disease, with acute exacerbations, primarily of the conjunctiva, of specifically infectious origin, of acute or insidious onset, occurring in epidemic form only in surroundings of personal and community uncleanliness, and characterized in its course by three stages of conjunctivial changes, namely: first, the so-called granular or follicular stage; second, the papillary, or hyperplastic stage, and third, the cicatricial or connective tissue stage, to which must be added certain frequent corneal changes marked by ulceration, opacification and pannus.

If these are facts, and I am sure they are, it follows that folliculosis is a condition that is merely the diathetic expression of a symptom which has no specific causation; while trachoma, on the other hand, is a complete syndrome, the result of a specific infection. While all admit this specificity, it is unfortunate that the identity of the micro-organism still remains *sub judice;* but personally I feel myself drawn with Weeks, Lindner, Edmondson and others, to the acceptance, at least tentatively, of the trachoma inclusion bodies of Halberstadter and Von Prowazek as the specific agent. The admittedly extreme difficulty in the technic for their demonstration has no doubt militated against their general acceptance.

It must not be lost sight of that trachoma does not invariably commence its symptomatology in the expression of granular or follicular conjunctivitis. Mayou, in his Hunterian lecture on "Changes in the Conjunctiva," 1905, states that he is convinced that the granules in trachoma are of follicular formation *plus* trachomatous infection. It is only therefore, where the trachoma irritant has incidence in the eyes of lymphatic children that this phenomenon occurs. Trachoma can never (or at least seldom) begin in this way in adults, for the very simple reason that the lymphatic tendency is usually outgrown at or soon after adolescence.

Trachoma may have an insidious onset according to some observers, but such men as Fuchs, Weeks and most other authorities distinctly agree that the usual initial symptoms are similar to those of other acute infections of the eye—lacrimation, inflammation, purulent discharge, pain, etc.

It is, of course, true that there are those who contend that conjunctival folliculosis and trachoma are one and the same disease, but, as Boldt, in his monograph on "Trachoma," translated by Parsons and Snowball, has said, "There are many upholders of the unitarian theory of these dieases among military surgeons, health examiners and school inspectors, while the great majority of ophtahlmologists maintain the dual nature of the conditions."

FALLACIES

I cannot close without an attempt, however feeble, to puncture a few gaseous fallacies so often seen and heard rhetorically soaring in connection with this theme. The first, and perhaps the most important, is as to the communicability of folliculosis.

There are writers who declare that it is infectious. No unquestionable evidence has been introduced to prove the statement, which is apparently a "hand-me-down" opinion. The fact that it appears in large numbers of school children is the sole argument offered in support of the theory. It is an imponderable argument. One might as well say that hypertrophied tonsils and adenoids, or errors of refraction are infectious for the same reason. Greef and Mayweg, cited by Axenfeld, and others, have made repeated efforts to transfer the disease from one individual to another and have invariably failed. The multiple occurrence of well-marked cases in the same family is undoubtedly far less than the occurrence of familial multiple cases of pathologic tonsils and adenoids, or refractive errors of the vision.

A coincidence of causative infection in a case of folliculosis is, of course, transferable, and this may or may not set up a folliculosis, according to the recipient is or is not himself of the lymphatic type.

Another thing that one hears and reads from time to time is that the follicles of folliculosis appear, as a rule, only in the lower fornix, the inference being, of course, that if the follicles occur elsewhere the condition is trachoma. This misobservation can only be due to the failure of many examiners (and ophthalmologists among them, I regret to say) to evert the retrotarsal fold when inspecting the conjunctiva of the upper lid. This area (the upper fornix) is peculiarly susceptible to folliculosis, and it is, in fact, seldom that it is not involved equally as heavily as, or more so than the lower fornix. Indeed, in many cases, *only* the upper fornix is affected.

Again, we are often met with the assertion that if the follicles appear in the bulbar conjunctiva, that is a positive indication of trachoma. Such a statement is essentially incorrect. As a matter of fact, every heavily marked case of folliculosis shows the characteristic lymphatic infiltration of the bulbar membrane. It is the rule. It is most marked always in the upper nasal quadrant, and often involves the semilunar fold and even the caruncle. I have seen scores of such cases among children, which time, if nothing else, has proved to be simple folliculosis and not trachoma.

It has been said that in trachoma one eye is usually more affected than the other, while folliculosis always affects both equally. This is inaccurate. I have repeatedly seen in a child a marked folliculosis in one eye, while the other was entirely normal. Such a case is wholly analogous to the occurrence of one markedly hypertrophied tonsil in a child. What would the latter prove—cancer? Hardly.

Reference has been repeatedly made in recent years to the great importance of obscuration of the vascular structures of the conjunctiva as an almost pathognomonic indication of trachoma. I have even heard it said of a certain well-known expert in the study of trachoma that he made the statement that in otherwise doubtful cases he unhesitatingly based his diagnosis of trachoma on the presence of this sign. We may grant that it may be suggestive, but it does not come within the purview of diagnostic dignity. That such a faulty observation has been made and gained wide circulation is perhaps due to the fact that so many men have studied and written of trachoma who have no broader knowledge of ophthalmology as a whole.

Every well-informed ophthalmologist knows that this vascular obscuration is merely an evidence of true hypertrophy of the conjunctiva proper. The latter *never* occurs in simple folliculosis, and we can, for this reason, say that in such a case we might eliminate folliculosis as a diagnosis. But that is far from meaning that the case is therefore one of trachoma, or even that it is likely to be trachoma; for besides in this disease the same phenomenon is met with in Parinaud's diphtheritic, vernal and tubercular conjunctivitis, the secondary stages of gonorrhoeal ophthalmia, the exposed mucosa of ectropion, chemical insult and perhaps other conditions. It is at once seen how vacuous is the contention that this sign is to be regarded as in any degree characteristic of trachoma.

We hear at time of a faint narrow vascular film at the corneal limbus, as if about to grow down over the corneal epithelium, easily seen with the loupe and sometimes with the naked eye. This, we are told, is important, as it indicates a beginning tendency to pannus. God save the mark! Such a formation is to be seen in perhaps ninety-five per cent of all human eyes. Besides, pannus does not form on the surface of the corneal epithelium, but on Bowman's membrane, *beneath* the epithelium.

And finally it has been said that folliculosis occurs only among school children because they are crowded together in ill-ventillated rooms, etc. It is not so. Folliculosis, like tonsils and adenoids, helminthism and other disagreeable things, occurs among all children, everywhere, whether in school or out of school, indoors or outdoors, rich or poor, high or low, fat or lean, blond or brunette, male or female, wise or otherwise, and, I was about to say, black or white, except that it is probable that blacks are less commonly affected. And anybody can prove this to his own satisfaction, as I have done, simply by going out and looking for it.

DISCUSSION:

J. A. Stucky, Lexington, Ky: I wish the trachoma question was one about which I really knew something. I have seen more of it during the last ten years than the previous ten, but I do not yet know its etiology. The fact that the etiology of trachoma remains unknown is a reproach upon ophthalmologists and the science of medicine. We know the cause of the majority of the other diseases we are called upon to treat, but not this one.

The greatest problem confronting the country today is how to handle the trachoma situation. The United States Bureau of Public Health has accomplished some marvelous work, and so far as I am able to judge the progress of the disease in this region has been arrested, its ravages have been mitigated, but whether many cures have actually been effected I have yet to decide. I confess that I do not know when trachoma is permanently cured.

The citation of a few concrete cases may be interesting. I operated upon a child (female) for trachoma nearly twenty years ago. The disease recurred from time to time and she was subjected to several subsequent operations. Dr. McMullen, U. S. B. P. H., the most expert man I have ever known in this line, operated on her once. She is now about thirty years of age and came to me a few days ago with another "flare up" of her trachoma. Inspection shows the conjunctiva brawny, smooth, many cicatrices are present and characteristic new follicles are visible.

I recall a prominent Methodist minister upon whom I operated fifteen years ago. I thought he was cured and told him so. Last winter he returned with the most severe and intractable "flare up" that I have had to deal with in many years. I consider trachoma one of the most mysterious and treacherous of diseases.

There is just now a great stir among medical men of the United States about the differential diagnosis between folliculosis and trachoma. And, candidly, notwithstanding our experience with the disease in the mountains of Kentucky and Tennessee, a differential diagnosis cannot always be made in the early stages. Had the patients been seen in the mountains I would have called eight out of ten of the cases shown on the screen by the essayist this evening as trachoma, or at least suspicious, and seven or eight years ago I would have said they were all trachoma!

A few years ago twelve or fourteen cases of trachoma were reported to me by the medical inspector at Lexington. Upon examination I agreed that it was trachoma and the children were excluded from school. They all had evidence of folliculosis with inflammation, discharge and photophobia. I ordered these children to the hospital for operation, but not one of them reported. I then appealed to the board of health without any immediate results, and in the meantime the inflammation and discharge subsided under the care of a district nurse who was giving the treatment I had ordered. The health board asked me to examine the children again a month later, which I did, and at that time it did not look so much like trachoma but more like folliculosis; so I concluded that I must have been mistaken in my original diagnosis. To make a long story short, these twelve or fourteen children, and thirty or forty other border line cases have been kept under close observation for four years. They showed marked improvement after removal of their tonsils and adenoids and were permitted to return to school. It is evident that they did not have trachoma. I examined many of them last week, because I wanted to make this report tonight.

My ideas about the diagnosis and treatment of trachoma have undergone material change during the last few years. In true trachoma I believe in being radical so far as treatment is concerned, but we should be certain that we are dealing with trachoma before resorting to radical measures. I am not sure that I can make a diagnosis of trachoma in the early stages, and we are waiting for somebody to determine definitely what is the etiology of the disease. We are told in the beginning trachoma looks like ordinary conjunctivitis, but if extensive hypertrophy occurs, if the conjunctiva cannot be stretched and the blood vessels plainly seen, especially if other members of the family or anybody in the neighborhood with whom the patient comes in contact show conjunctival cicatrices, then I at once convict that patient on circumstantial evidence and treat the case as trachoma.

I have just gone through a long siege in the committee on Ophthalmology of the American Medical Association with especial reference to differential diagnosis of folliculosis and trachoma, and the chairman asked me to write him my views in brief, which are as follows:

"In my mountain clinics it has been difficult to decide whether a case in the acute stage was trachoma, but if the conjunctiva was thickened and inflamed, and there were other cases of the disease in the family or the neighborhood, the case was regarded as suspicious and treated as trachoma. In the second stage my differential diagnosis between trachoma and folliculosis of the conjunctiva was based on the observation that in simple follicular hypertrophy (that is, adenoid hypertrophy of the subepithelial layer of the conjunctiva) the conjunctiva is easily and evenly put on the stretch, the whole membrane being elastic and the blood vessels easily seen. But where the hypertrophy involves the whole body of the conjunctiva (papillary hypertrophy or papillary thickening) then the conjunctiva cannot be stretched and the blood vessels are not visibly outlined. While this is a pathological differentiation, it is applicable in the study of every case. I prefer the term adenomatous conjunctiva, inasmuch as it covers the ground whether or not there are inflammatory phenomena present, and does away with the necessity of distinguishing between folliculosis (without inflammation) and follicular conjunctivitis (folliculosis plus inflammation)."

Whether trachoma exists in epidemic, pandemic or endemic form in the public schools of the South I do not know, but I am sure it does not in Lexington. I see more of it now in central Kentucky than ten or fifteen years ago, and the majority of the cases come from the type of individuals and surroundings the essayist has referred to, but I have seen persons with trachoma who were reared in affluence with perfect sanitary and hygienic surroundings. One was a prominent lawyer, another the minister to whom reference has already been made.

The disease is undoubtedly conveyed from one person to another by morbid secretion, but whether this contains micro-organisms or some other infective substance we do not know. In my opinion trachoma in the terminal or cicatricial stage is not contagious; it is contagious only in the active stage when there is secretion.

I must differ slightly from the essayist in what he said about pannus. My observation has been that pannus is almost pathognomonic of trachoma; in fact, I do not recall having seen a single patient with pannus who did not have trachoma.

Differentiation between trachoma and folliculosis cannot always be made by sight nor even by the microscope, and where we cannot be positive I believe we should give the patient the benefit of the doubt, and treat the case as trachoma. I do not believe every suspicious case should receive the radical treatment of grattage. To properly do this operation requires surgical skill and judgment.

There are certain phases of the trachoma problem about which we must be careful. Some of the after-effects of trachoma cannot be relieved by any means of which I have knowledge.

This is a very timely subject for discussion, and I am glad my Southern friend, Dr. Jervey, has given us his splendid paper. I have had the pleasure of seeing some of his cases and know he is a very careful observer.

J. O. Carson, Bowling Green: I have for many years been associated with trachoma which is such a difficult disease to handle and so hard to control that it is really a problem. I believe it is practically agreed that the two diseases under discussion, viz., folliculosis and trachoma, are separate and distinct, but difficulty always occurs in distinguishing one from the other in the early stages. I do not believe early cases of trachoma will ever be positively diagnosed until the specific causative factor has been demonstrated by bacteriological and microscopic investigation. Some observers claim to have isolated the causative agent, but their findings lack confirmation. Until the etiology is settled a positive diagnosis of trachoma cannot be made unless scar tissue is present, and then it is too late to accomplish very much by treatment.

As to the contagiousness of trachoma: I fully agree with what Dr. Stucky has said. There are several counties in my neighborhood in which I believe there is more trachoma to the square mile than anywhere else in the state of Kentucky, excepting, perhaps, in some of the mountainous regions. This fact was determined by a survey which I made some time ago. The disease is highly contagious only during the stage of conjunctival discharge. I believe the surroundings also have something to do with its development. Of course, the epidemics of trachoma occurring in armies is an entirely different matter. Owing to their surroundings soldiers are probably oftener exposed to exciting causes than are civilians, and therefore trachoma is common. Many cases were observed in the various camps during the war.

Folliculosis is not contagious and is more akin to lymphoid hypertrophy in other portions of the body; it frequently coexists with adenoids and enlarged tonsils. I would be inclined, in all cases of folliculosis, and even in early suspicious cases of trachoma, to treat them mildly or let them entirely alone. At that stage the diagnosis cannot be definitely made and I am in favor of conservative treatment for a reasonable length of time. Where the diagnosis of trachoma seems certain, of course, more radical measures are indicated, but I am not sure that the disease can be permanently cured by any known method of management. It has been claimed that once trachoma has fully developed the patient is apt to have it all his life. The treatment is so tedious and requires so much time that both doctor and patient become discouraged. Oftentimes when improvement occurs treatment is discontinued. I believe the same rule applies to trachoma as to malaria, viz., the patient must be removed from malarial districts to effect a cure of that disease, and if a trachoma patient be taken away from the place where he lived and contracted the disease it is more easily handled than would be otherwise the case.

In the survey which I have mentioned if one child with trachoma was found in a school we were apt to discover others in the family or in the neighborhood. In families living in other localities and in a different atmosphere no cases of trachoma were found. I do not know what causes the disease, nor does anybody else so far as I am informed. It is questionable whether isolation and exclusion from school should be insisted upon in mild cases without appreciable discharge. Of course, all severe cases should be excluded from public schools. The disease is disseminated by the transfer of the conjunctival secretion from one person to another, and perhaps the safest plan would be to exclude from school all children with eyes discharging until it is shown that the disease is not contagious.

We should be careful about making the diagnosis of true trachoma until after the patient has been watched for some time. Unfortunately the only certain diagnostic sign is cicatricial tissue, and this does not occur early. I am aware of instances where folliculosis was treated as trachoma with considerable destruction of tissue and resulting deformity. The operation usually performed for trachoma may seem a simple procedure, but sometimes the patient is in worse condition afterward than before. For that reason I am inclined to treat the patient by simple measures until the nature of the disease is positively determined. It hardly seems necessary to say that patients with trachoma should only be treated by some one who has had experience in that class of work.

Dr. Jervey did not mention the fact that negroes are immune to trachoma, or at least that few cases havev been observed in the black race. I would like for him in closing the discussion to explain the reason for this immunity.

John McMullen: I am somewhat handicapped in trying to discuss Dr. Jervey's paper, when I have to follow accomplished orators as Dr. Stucky and Dr. Carson, but being a member of the United States Public Health Service (whose work has been criticized by the essayist), I suppose a few remarks must be made.

Not long ago I was told by a prominent ophthalmologist that the greatest trouble with those of us who are in the public health service was that we did not understand the private practice side, and I am ready to admit much of that is true, but, on the other hand, at least some of the ophthalmologists do not seem to understand or appreciate the public health side of the question as thoroughly as they should.

I believe upon at least one point we are all agreed, i. e., that trachoma is communicable. I did not know that follicular conjunctivitis had ever been considered an infectious or communicable disease. A number of my friends among the ophthalmologists inform me that they see very little trachoma. One in particular, a prominent man, states frankly that he knows nothing about it. The truth of the matter is that many doctors do not want to see or treat trachoma patients; as Dr. Carson says, it requires too much of their time. When a patient with trachoma or folliculosis applies to the ophthalmologist for relief, it makes no great amount of difference to that patient by what name the disease is called; what he wants is adequate treatment.

Those of us who are doing public health work try to distinguish between the various eye diseases; we are compelled to make a diagnosis then and there, as nearly as may be possible; and we are asked to examine the eyes of a great number of people. My own plan, which is also followed by my assistants as a rule, is to prepare a blank sheet of paper which is marked in three columns for use when examining school children or others. In the first column we enter the name and age of the patient and all the cases in which a positive diagnosis of trachoma can be made; in the second column are entered the cases which we regard as suspicious; in the third column we note the cases of simple conjunctivitis. The last column includes only cases which are not communicable or contagious. We have found this a rather practical way of handling the diagnostic records.

Now, most of the ophthalmologists with whom I have discussed this matter—and I have been engaged in this class of work for many years, in the Orient, in London and other places abroad, in various portions of the United States with headquarters in Kentucky, with the co-operation of a large number of ophthalmologists—tell me there are many cases in which, based upon their findings, it is impossible for them to make a positive differential diagnosis. It is indeed gratifying to hear that our friend, Dr. Jervey, can invariably make the diagnosis in every case of this kind. I admit there are a great many in which I am in doubt as to the exact nature of the disease.

The essayist told us that the disease progresses to the stage of cicatrization and is followed by a train of sequelae dangerous to the integrity of the eye. If a case is counted as suspicious of trachoma, of smallpox, or of any other communicable disease—if we honestly believe it is suspicious—is it fair to permit the patient to associate with others to determine whether or not they will contract this particular disease? I do not believe we are justified in such a proceeding. Those of us who have been working in trachoma for a long time and have seen its detrimental and damaging effects upon the eye, believe that the disease has certain potentialities, and that suspicious cases should not be permitted to come in contact with the well. That should be our attitude in regard to all communicable diseases.

I am of the opinion, and the essayist has so stated, that trachoma is no respecter of persons, but it is not a disease which owes its origin to filth; it may be contracted by one individual just as readily as by another. Dr. Stucky has told us he has encountered it in the best of families. A young physician employed by the public health service, a man of high character and cleanly habits, in one of our trachoma hospitals (not in Kentucky) contracted trachoma, the diagnosis being confirmed by a Cincinnati ophthalmologist. Those of us in public health service doing trachoma work make every effort to distinguish between follicular conjunctivitis and trachoma, but we proceed on the assumption that suspicious cases are a source of danger and should not be permitted an opportunity to infect the well. In employing physicians for trachoma work only those with special training in eye diseases are accepted. They are placed in one of our trachoma hospitals and remain there for an indefinite period, but at least several months, before being given work in the field on their own responsibility.

As to the curability of trachoma: We do not profess to have any special secret method or infallible remedy. Personally, I believe trachoma is a surgical disease, and unless treated surgically little or no good can be accomplished. In speaking of surgical treatment I do not refer to cases of folliculosis, nor do I mean that every suspicious case should be subjected to radical operation, but based upon my experience in this work I believe it would be criminal not to operate upon patients with true trachoma in the hope of preventing extension of the disease and the usual complications and sequelae, including deformities of the lids, corneal ulcers, pannus and blindness.

Our statistics show that two out of every hundred patients have become totally blind, and four have lost one eye from trachoma; that is, six per cent have lost either one or both eyes as a result of this disease. The public health service has not undertaken the practice of medicine in dealing with trachoma; it has only endeavored to do public health work. We try to co-operate with the medical profession, and under no circumstances do we wish to do anything not desirable as a health measure or where we cannot co-operate with ophthalmologists. That should be plainly understood.

I did not know it had been declared there was an epidemic of trachoma anywhere in this country. I think we all recognize that the disease is usually insidious in its development; that it varies in its intensity in each individual as do other diseases; that it varies in its mode of onset and in its period of incubation. We see cases of trachoma affecting one eye, even progressing to the stage of cicatricial tissue formation, the other eye not being involved. We have often been asked why that is. I do not know, but we realize there is a great deal about immunity that we have yet to learn. The same question might be asked concerning gonorrheal ophthalmia; why do not all men with gonorrhea have ophthalmia, and why do not both eyes become infected?

A similar statement might be applied to scarlet fever and many other diseases; why does not the disease affect every member of the family? When speaking of the cure of trachoma, of course, I realize that in some instances the disease may recur, but this is no reason why we should not make an effort to cure it.

In 2,900 cases of trachoma our records are known to be complete. Many of our records are incomplete because some of the patients live in remote districts and the end-results cannot be determined until we can again examine them. Of the 166 children under five years of age included in the above, 19 had ulcer; 23 had impaired vision; 60 had photophobia; 25 had pannus; 3 were blind in one eye and 1 in both eyes. Between five and ten years of age there were 631 cases. I will not take the time to present further statistics except to say that 50% of our trachoma patients had photophobia; from 25% to 30% had pannus; 10% to 15% had ulcers. I have about concluded that blindness may not be the worst result that can happen to a child with trachoma. With deformity of the lids, with damage to the ocular structures, with dwarfing of both body and mind as these children develop, simply because their entire lives are spent in shielding their eyes from the light, their condition is indeed pitiable.

I agree with what Dr. Stucky has said about the appearance of the blood vessels as a diagnostic sign of trachoma. Pannus occurs quite frequently in trachoma cases, but I do not believe it is ever noted in follicular conjunctivitis. In trachoma the secretion is not always thick and purulent in appearance, it is more watery than in follicular conjunctivitis.

I believe it was Fuchs who stated in his book that during routine examination of school children in New York so many cases of unsuspected trachoma were unearthed that for a time it was thought there was a veritable epidemic of the disease; when, as a matter of fact, there were no more cases than before, it had merely been found, that is all.

What the ophthalmic surgeon desires most of all is accuracy in the diagnosis of trachoma. It is upon this feature that most of the controversy has occurred. I am informed that a committee is to report before the forthcoming meeting of the American Medical Association on the entire trachoma situation, but with especial reference to the differential diagnosis, and it is hoped the suggestions offered by the committee will be of assistance to all of us in the trachoma problem.

S. G. Dabney: I want, first of all, to voice the opinion which I believe is held by every man and woman present, i. e., that the United States Public Health Service has accomplished a world of good; that there have been few more beneficient acts of the government than the work which has been accomplished in the mountains of Kentucky and elsewhere on the trachoma situation. We all have to take off our hats to Dr. McMullen. That, however, has nothing on earth to do with the essay of the evening. Dr. Jervey has come all the way from South Carolina to ask us how many school children in Louisville have genuine trachoma. That is the question at issue as I understand it.

We all recognize the immense benefits which have resulted from the work of the public health service in certain localities, and I believe it has been of some benefit in the city of Louisville, perhaps more than in certain other cities. I know there are others to speak and I will make my remarks as brief as possible.

I like Dr. McMullen's classification of the subject very much. There are some cases, the proportion may be very small, but there are some which every one in this room will readily agree is trachoma. Then there are cases at the other end of the line which every one will agree is not trachoma. Now comes the middle group in which the diagnosis is very difficult. I wish I felt as sure as some of the other speakers about three weeks' observation being sufficient to clarify the diagnosis. It does not do so in many instances, at least that has been my experience.

In this middle group, the suspicious cases, as Dr. McMullen calls them, I am inclined to disagree with my friend, Dr. Carson, in the treatment. If they are sufficiently suspicious, and after repeated examination the disease still looks like trachoma, I personally believe the wisest course is not to use the mild type of treatment. I agree with Dr. McMullen that in this suspicious group of cases the most sensible procedure is to pursue vigorous treatment.

Epidemic, as I understand it, means widely prevalent among people. I would not say that we have had an epidemic of trachoma n Louisville. I see very few residents of Louisville who have trachoma. But what harm can treatment do even if some of them are treated who have not trachoma? I think it is extremely doubtful whether any serious harm has been done to the eye by an experienced operator in performing grattage or using roller forceps as recommended by Dr. McMullen. Later examination of the lids merely shows a small white line and no harm has been done. I do not believe eyes have been injured by treatment for trachoma carefully applied even if that treatment was unnecessary.

Some one spoke of the rarity of trachoma being contracted by doctors, nurses, etc. Dr. McMullen mentioned one physician in the public health service who acquired the disease in the performance of his duties. The late Dr. William Cheatham had a gentleman associated with him at one time who became infected while treating a patient and developed a very serious, intractable case of trachoma which persisted for a long time. He was operated upon repeatedly and finally made a satisfactory recovery. Several of us saw him in consultation.

I believe all suspicious cases should be treated as trachoma. They are rare in our community and from what I have read they are rare elsewhere outside of certain localities. Genuine cases are not always from the mountainous regions. I have seen a good many cases of trachoma from southern Illinois (hence the name "Little Egypt," some say), a few from Jefferson and other counties in Kentucky. However, the majority of the genuine cases of trachoma I have seen were from the mountains of Kentucky and Tennessee. I have seen a few in the school children of Louisville.

It hardly seems necessary to state that all cases of genuine trachoma should be operated upon at the proper stage, but often operation fails to cure when at first it seems perfectly satisfactory.

Adolph O. Pfingst: Dr. Stucky in his opening remarks stated that he thought he knew more about trachoma five or ten years ago than he does today. I do not believe I have ever known anything about trachoma, and as I have watched the work of men in various hospitals in Vienna, Berlin, New York, etc., I notice that little or nothing is known about this disease. I am frank enough to confess that I cannot make the diagnosis in the early stages.

Why is it that we have had so much controversy? Why can we not come to some definite conclusion? The answer has been very well stated in the discussion here tonight, i. e., that the pathology in the two diseases, folliculosis and trachoma, is practically the same. In each case there is involvement of the sub-epithelial tissue of the conjunctiva. Examination of the conjunctiva in trachoma and in folliculosis will show the same accumulation of lymphoid cells in the form of nodes very much like those found around the tonsil crypts. Dr. Stucky has told us that in trachoma there is a thickening of the mucous membrane between the follicles. In folliculosis the follicles seem higher than in trachoma, but this is more apparent than real, the lymphoid follicles are of the same size in each disease, but owing to the thickening of the conjunctiva in the early stages of trachoma the follicles appear less elevated than in folliculosis in which the conjunctiva is less swollen.

No conclusion has yet been reached as to the cause of trachoma. It has been said here tonight that the disease is communicable. We have known that for many years. Its degree of communicability is on a par with tuberculosis. It is not actively contagious, but evidently by long continued or repeated exposure to the infection. A few years ago we thought tuberculosis was inherited, but this view is no longer held, and we know now that long continued exposure to the tubercle bacillus will finally create a new infection. It will probably be found that trachoma is transmissible from one person to another in about the same way. However, the specific infectious element of which Dr. Jervey spoke has yet to be discovered.

A few years ago great importance was attached to the so-called inclusion bodies found in the epithelial cells. These are small granular masses in the protoplasm. However, investigations have shown that similar bodies are found in follicular conjunctivitis. While we do not know the cause of trachoma, we do know that it occurs in families where many persons are living together in crowded quarters, and yet I do not believe filth alone ever caused this disease. I have observed the disease in people who were known to be clean and whose surroundings were hygienic and sanitary.

The clinical course in trachoma and folliculosis, as we all know, is very similar in the early stages. In either the follicles may occur in the upper or lower fornix, so we cannot come to any conclusion by the location or size of the follicles. All of us can make the diagnosis of trachoma in the late stages after cicatrization has occurred, but as has been said it may then be too late to accomplish much by treatment.

It may seem strange, but I see very few cases of trachoma. While I have not consulted my records, I doubt whether I see more than six or eight cases during the year. Nearly every patient with trachoma that I have seen has come from out of the city. I am quite sure that the cases which we see every day in our offices in children who have been sent home from school with eyes "suspicious of trachoma" are not cases of trachoma, but of folliculosis or of follicular conjunctivitis.

As to the work of the public health department in relation to trachoma: Like the others who have spoken, I think we are very fortunate in having the government select Dr. McMullen for our district. I know he has been very successful in his work. Whether he has confined his operations to cases of trachoma, I am not prepared to say though I believe that many of the cases were folliculosis. He would be more apt to operate in a suspicious case than I would, as he is a public health man who has not the opportunity to do "follow up" work, hence he would take no chances. I would prefer on the other hand to give the patient the benefit of the doubt and employ conservative treatment at least and reserve the surgical treatment for the cases in which therapeutic measures fail. I am not a believer in promiscuous operations for trachoma or suspected trachoma. Unlike Dr. Dabney, I have seen some bad results following the operation. In my opinion even the simple operation of expression is not without danger. About the time when the first health inspectors representing the government came here, some four or five years ago, and found what they believed to be many cases of trachoma among the school children of Louisville, a few of our eye men commence to oprate promiscuously in these cases, and I can say positively that I have seen quite a number of children with scar tissue bands in the conjunctival folds following operation. I am sorry to say that my observations lead me to believe that more of these results were noted after operations by ophthalmologists than by public health men.

The statement of Dr. McMullen that he cures trachoma by operation is a misleading one for the importance of after-treatment must not be underestimated. In other words, the patient is not cured of his trachoma by the operation without further treatment. I believe the mistake is frequently made of not impressing the family with the fact that the operation is only the beginning of the treatment and that the patient is not cured by the operation, but that the time of the therapeutic treatment is cut short by the surgical measure and that long continued therapeutic after-treatment must be persisted in.

J. W. Jervey (closing): I regret that it was impossible for me to hear everything that was said in the discussion of my paper. I fully appreciate the wonderful work which Dr. McMullen has accomplished; he is, so to speak, in a class by himself. And while we may not agree with all of his ideas concerning the subject of trachoma, no one who has ever come into contact with him can help being impressed with his earnestness.

It must not be inferred that I pretend to know more about the diagnosis of trachoma and folliculosis among school children than anybody else. The diagnosis does not depend in any case upon the presence or absence of conjunctival follicles. No one can differentiate between folliculosis and trachoma in individual cases; the follicles in the early stages are absolutely indistinguishable, but when there are hundreds of cases of conjunctivitis in children, with no papillary hypertrophy, with no cicatricial tissue, pannus nor anything else definitely diagnostic of trachoma after prolonged observation, it may be positively stated that there is no trachoma among such children. That is one of the points which I tried to make clear in my paper.

Dr. Stucky objected to the statement that trachoma was a filth disease, and undertook to prove his contention by citing two cases: He must certainly recognize the fact that individual cases were not considered in my paper. Let it be stated that no individual, no matter how clean or sanitary he may be, is exempt from any communicable disease if brought into contact with it. The principal point in this discussion is the epidemiology of trachoma among school children; individual cases were not considered in my paper.

Dr. Carson asked why negroes were immune to trachoma: I am unable to answer his question definitely, but negroes are immune to folliculosis for the same reason they are immune to other adenopathies. Seldom does one observe pronounced adenopathy of any type in the pure black; it is seen in the mulatto, the octoroon and other mixed bloods, but not in the pure black.

I agree with what has been said concerning the necessity of a definite decision on the question of the differential diagnostic points between beginning trachoma and folliculosis. This question may be considered at the forthcoming Boston meeting of the American Medical Association; at any rate a resolution will be offered at that meeting containing suggestions which it is hoped will lead to a satisfactory adjustment of the matter.

DOCTOR STEELE BAILEY.

"His silvered locks were once a golden red,
His mild blue eyes all gentleness did shed,
His Irish tongue was Eden's it is told;*
His work was in the Aesculapian fold.

"Permanent secretary" there was he
And all the justice of his rule could see;
And never could there opposition be
To one so pure, so from all fault so free.

Beloved of man, a toiler in God's right,
In heaven "secretary," may be his plight—
He'll serve both God and man with all his might.

No higher tribute may e'er be paid
Than now to say "Well wrought, each work essayed;
With never man's nor Master's work delayed."

"AESCULAPIAN."

(After reading "a sketch" in the March issue of the Kentucky Medical Journal John O'Hart, "Creation" in "Irish Pedigrees.")

New Method of Adding Cresol to Antiserums.—A mixture of equal parts of ether and cresol is presented by Krumwiede and Banzhaf as a new preservative for antitoxins and serums. This mixture is added in amounts necessary to give the required concentration of cresol. The addition of this mixture causes much less precipitate than does cresol alone. Subsequent precipitation is not necessarily limited by the ether, it is never greater than that in products containing cresol alone. The misture of ether and cresol is more strongly antiseptic than cresol alone. In therapeutic application, the ether is not a disadvantage. In the case of intravenously injected antitoxin, the indication that the ether may under certain circumstances reduce the incidence of adverse reactions warrants further comparative work. Ether may be added to the toxin-antitoxin mixture without disturbing the balance of the mixture.

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DENTAL PROPHYLAXIS	
George H. Heyman	*Louisville*

ANNUAL MEETING, PADUCAH, 1922.

COUNTY SOCIETY REPORTS

Russell.—The Russell County Medical Society met in the office of J. B. Tartar, Russell Springs, June 10.

L. D. Hammond and J. B. Tartar gave lengthy and interesting talks on various subjects of much interest both to physicians and laity. Owing to the downpour of rain the night before and morning of 10th prevented several of the members from attending. After the talks and business was through the society adjourned and taken dinner with Dr. and Mrs. J. B. Tartar.

J. B. SCHOLL, Secretary.

Barren.—At the regular meeting of the Barren County Medical Society the following officers were elected:

President	A. T. Botts
Vice-President	Clifton Richards
Secretary-Treasurer	L. E. Botts
Delegates	J. W. Acton

Boyle—At the regular meeting of the Boyle County Medical Society the following officers were eleceted:

President	W. O. Hopper
Vice-President	P. C. Sanders
Secretary-Treasurer	W. H. Smith
Censors	W. O. Hopper, D. M. Godby, Fayette Dunlap.

Calloway.—At the regular meeting of the Calloway County Medical Society the following officers were elected:

President	C. O. Gingles
Vice-President	Ben B. Keys
Secretary-Treasurer	E. B. Houston
Delegate	P. A. Hart

Larue.—At the regular meeting of the Larue County Medical Society the following officers were elected:

President	C. L. Williams
Vice-President	E. S. Smith
Secretary	Leigh Maupin

Laurel.—At the regular meeting of the Laurel County Medical Society the following officers were elected:

President	H. V. Pennington
Vice-President	G. S. Brock
Secretary-Treasurer	Oscar D. Brock
Delegate	H. V. Pennington
Censors	J. W. Crook, Wm. Johnson, G. S. Brock

Warren.—At the regular meeting of the Warren County Medical Society the following officers were elected:

President	Ernest Rau
Vice-President	J. M. Adair
Secretary-Treasurer	W. H. Neel
Delegates	J. H. Blackburn and J. W. Lewis
Censors	T. W. Stone, J. L. Neel, M. M. Moss

THE FORUM

City View Sanitarium,
Nashville, Tenn.

To the Editor:

I shall shortly prepare and send to you manuscript and cuts to replace our present ad and to represent my new plant which is rapidly approaching completion and which I hope to occupy about the first of July. I sold this property some months ago to Walden University, but have the use of it until the middle of September, though I expect to give it up before then.

Our new plant situated about half a mile east of the old one and on the same thoroughfare, the Murfreesboro road, will be in many respects a great improvement and advance over this one. We have there fifty acres of land and the hospital will be located in the middle of the tract. It will consist of four units, containing the idea I long years ago adopted of separate buildings for men and women, which I consider an ideal arrangement and the obviation of many unpleasant and undesirable features attendant upon having the kitchen located in the hospital proper. The four units are the men's building, the ladies' building, my residence and administration department, and lastly the dining room, kitchen and storage rooms. Altogether there will be about one hundred and thirty rooms, furnishing accommodations for about sixty patients. All buildings are of brick, the new ones being in varigated colors of the mat effect, trimmed with Bowling Green marble, a pleasing combination. The total outlay will represent about two hundred thousand dollars, and I feel justified in making the statement that there will be no superior institution of like kind in the South. It is a bit of satisfaction to know that it has grown to this from its modest and unpretentious beginning when I established it fiftteen years ago.

Yours very truly,
JOHN W. STEVENS,
Physician-in-Charge,
City View.

To the Editor:

April 28, 1922.

I note that in your issue of March 15th that you gave me credit for an article on "Constipation" which was written by Dr. J. L. Atkinson, of Campbellsville, and was read before the Taylor County Medical Society last fall.

I thought at the time that it was sent in that his name was affixed to the paper, also that I had written a few lines explaining the matter. However, be that as it may, the paper has been wrongfully attributed to me, and while I would like very much to be the author of such an excellent paper, and while I may be guilty of having plagerized portions of the efforts of better men than I am, I have never been guilty of stealing the "whole cheese"—title and all.

Please make the necessary correction in your May issue and oblige,

Sincerely yours,
C. V. HIESTAND.

NEWS ITEMS AND COMMENTS

The National Research Council has appointed a special board of eminent medical men to administer the National Fellowships in Medicine which the Research Council is able to offer through special gifts to it by the Rockefeller Foundation and General Education Board amounting to $100,000 a year for five years.

The members of the board are: Victor C. Vaughan, formerly Dean, Medical School, University of Michigan, now chairman, Division of Medical Sciences, National Research Council; ex-officio chairman; David L. Edsall, Professor of Medicine and Dean of the Medical School, Harvard University; Joseph Erlanger, Professor of Physiology, School of Medicine, Washington University, St. Louis; G. Carl Huber, Professor of Anatomy and Director of Anatomic Laboratories, University of Michigan; E. O. Jordan, Professor of Bacteriology, University of Chicago; Dean Lewis, Professor of Surgery, Rush Medical School, Chicago; W. G. MacCallum, Professor of Pathology and Bacteriology, Johns Hopkins University; Lafayette Mendel, Professor of Physiological Chemistry, Yale University, and W. W. Palmer, Professor of Medicine, Columbia University, School of Medicine.

The following are open only to students who have already obtained the degree of M.D. or Ph. D., or have equivalent qualifications. Fellows will be appointed for one year with the privilege of applying for reappointment. Applications or requests for special information should be made to the Division of Medical Sciences, National Research Council, 1701 Massachusetts avenue, Washington, D. C.

Dr. E. McD. Trabue, 910 Starks Building, Louisville will limit his practice to the diagnosis and treatment of tuberculosis. Office hours, 12 to 1 p. m., daily except Sunday and by appointment. Phones, office, Main 611, city 611, residence West 121-J.

IN MEMORIAM

Dr. Joseph R. Luten

Dr. Joseph R. Luten, son of Dr. Samuel B. Luten, was born at Moscow, Hickman County, Kentucky, March 6, 1843, and acquired his literary education at Moscow Seminary and Bell Forest Academy, near Union City, Tenn.

At the breaking out of the war between the states he enlisted as a Confederate soldier. Was a member of Col. W. W. Faulkner's Regiment, Twelfth Kentucky Cavalry. Captain Henry A. Tyler's Company of Gen. N. B. Forrest's command..

In the fall of 1863 he was captured at Florence, Ala., in a short while was paroled, returned home and did not re-enter the service. In 1865 he began the study of medicine under his brother, Dr. Sam W. Luten. Attended lectures at the Jefferson Medical College, Philadelphia, in the autumn and winter of 1866-67. In 1867-68 was a student in the Medical Department, University of Louisiana, and graduated from that school in the class of 1868.

Upon his return home he located at Wesley, now Beelerton, Hickman County, where he remained until 1875. He then moved to Fulton and practiced medicine until July, 1921, when getting hurt from a fall traumatic pneumonia developed, which caused his death September 11, 1921.

Dr. Luten always enjoyed a large practice, financed well and left a considerable estate. In 1875 he joined the Southwestern Kentucky Medical Association at the annual meeting of 1878, and was elected Senior Vice-President.

May, 1894, he attained the highest honor within our gift, the presidency. Our colleague early in his professial career was recognized as an able practitioner and for more than thirty years as one of the most efficient physicians in a large area of country embracing quite a number of Kentucky and Tennessee counties.

In 1881 he was elected representative to our state legislature from Fulton and Hickman counties, and performed his duties in a manner highly creditable to himself and his constituents. Dr. Luten was married in September, 1868, to Miss Kate Browder, of Fulton County. She was a highly educated, refined lady, a suitable companion for her distinguished husband.

Mrs. Luten died in 1902, and a few years later he was again married. Dr. J. R. Luten was a member of the Fulton County Medical Society, the Kentucky State Medical Association, the Mississippi Valley Medical Association, the American Medical Association and the I. C. R. R. Association. He did post-graduate work in Philadelphia, New Orleans, and in one or two other schools. During the year 1877 he was appointed local surgeon of the Chesapeake-Ohio and Southwestern R. R., now a part of the I. C.

About 1880 he was appointed district surgeon for what is known as the main line of the I. C. R. R. Our colleague read a number of high class papers before this body, and took an active part in our discussions and work. He was tall, graceful and handsome, nature was indeed lavish in her bestowal of gifts to him. In his bearing he was friendly, courteous, jovial, steadfast in his friendships. He loved us as we loved him. A remarkably great number of the Luten family were and are doctors. Dr. Luten's father, grandfather and great-grandfather, brother, Dr. Samuel W. Luten, for many years a member in good standing in this association, his son, Dr. Horace Luten, a graduate of Tulane University in 1898, for twenty years a member of this body, three nephews, viz., Drs. J. B. Luten, Caruthersville, Mo., D. W. Luten, St. Louis, Mo.; Henry Davis, Cairo, Ill.; Dr. Horace Luten's son, Joseph R. Luten, is a dental student, a young man of much promise.

All of these are of the paternal line. For many years our brother was a member of the Methodist Church, was a Mason and served as master of his lodge. Our brother was continuously engaged in the practice of our art from March, 1868, to August 7, 1921, fifty-three years and five months. Many hundreds of times he entered homes overshadowed with gloom caused by fear of impending death of a loved one, and by his superior skill, cheerful and dignified bearing brought to their sad hearts brightness and good cheer, bringing from the gates of death a convalescent patient.

Having practiced the beautiful lessons learned from the cross and square we may safely from this fact predicate a hope that while we can meet him no more on earth, we may join him on that fairer shore, for "he that is faithful until death shall receive a crown of life."

ROBERT T. HOCKER, Ch'm.,
W. W. RICHMOND,
E. A. STEVENS,
Committee.

Diuretic Action of Calcium Salts in Nephritis With Edema.—Notwithstanding the fine results realized with calcium chlorid in war nephritis, there seems to be a general disinclination to give chlorids in kidney disease. But Blum and his co-workers declare that calcium chlorid is the most effectual and the- most harmless of all diuretics in the edema of Bright's disease. In the instructive cases described, they gave it by the mouth, up to 11 gm. a day. They reiterate that given with a salt-poor diet, it forms the best treatment for nephritis with edema.

KENTUCKY MEDICAL JOURNAL

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EDITORIAL

THE MOST IMPORTANT PROBLEM.

The most important problem confronting organized medicine as a public health agency is the education of the public as to the importance of effective medical treatment at the right time.

In the past it has been customary for the physician to first see his patient when he had been stricken with an illness that sends him to bed or with such a discomfort as sends him for an office consultation. In either case it has been usual for the patient to come to the doctor's office after he has suffered the discomfort unless it was a very severe one for hours or days, and, unless the illness is sudden and striking it is unusual for the physician to be called in its very first stages. A typical illustration is our totally unnecessary death rate from diphtheria. If every case of diphtheria had been seen by a physician within the first six hours and antitoxin had been promptly administered in sufficient doses and repeated, when necessary, every six hours, practically every one of the 4,000 children in Kentucky who died with this disease since 1910 would have been well. On the other hand, such of our physicians as are willing to accept the most modern practice are administering the Schick test to the children of the families in their practice and giving the toxin-antitoxin mixture to those which are shown to be non-immune to diphtheria, thus insuring their families that they will never be afflicted with this dreaded disease. In many Eastern cities this is being done systematically by the City Board of Health. The procedure was devised and has been successfully and effectively enforced by the New York City Board of Health. In a large measure it will always be carried out by boards of health and in public clinics because the indigent furnish ninety per cent of the victims of this disease.

We are using diphtheria merely as an illustration of our argument. It is important to remember that the people generally know nothing about the administration of antitoxin, the importance of the early diagnosis of diphtheria, the administration of the Schick test or the fact that it is possible to immunize children against diphtheria, and that they are not going to know it unless it is talked to them by their medical profession. The Knox County Medical Society, under the leadership of its president, Dr. Logan, has adopted one method of procedure which will be watched with interest. It is holding regular monthly meetings to which it is inviting the clubs and church organizations and the public generally, at which papers are read on such subjects as this expressing in plain terms the information which the public should have. Dr. Logan is arranging it so that these papers, after being read at the regular meeting, may be furnished to the physician of the various sections of the county so that they may call together groups of people in their section and read them again and again. Such a procedure is bound to inure to the benefit of the public health as well as to the material benefit of the profession. It is of great importance that the public be informed as to the necessity for adequate compensation for physicians so that they may be able to effectively equip their offices for modern practice. Modern professional equipment costs a great deal of money and its maintenance is expensive. These facts should be made clear so that people will realize that it is not merely greed which is actuating physicians, but that it is necessary for them to receive adequate compensation so that they may be able to give effective service.

There is a feeling amongst a considerable percentage of the public that there is a distinct tendency towards commercialism on the part of physicians, and in so far as this feeling has shown credence it has destroyed confidence in the medical profession. It is essential that it be overcome. It should be made clear that in most counties of Kentucky a third to a half of the people in it never paid a doctor's bill in their lives and they will never do so until not only roads and schools and living conditions have been improved but until their health standards have been raised to such a degree that they are willing and anxious to do enough work to earn enough not only to make a living in other respects, but to bear their share in paying for the prevention and cure of disease.

This is a matter of sufficient importance to warrant discussion at meetings of county societies, and it is suggested that this editorial be read and discussed at the next meeting of each society.

MIDWIVES.

It will be a surprise to many of our physicians and a still greater one to many of our people to know that Kentucky has a real problem in its so-called midwives. Twenty per cent of the births in this State are supervised by midwives. In the old medical practice laws the practice of these midwives was specifically exempted from the operations of the law, and it has only been for the past two years that the state has authorized any supervision over them. In most of the counties of the State there is not a single midwife. In others, however, a majority of the births are supervised by these women. For example, in Breathitt County 80 per cent of the births reported last year were reported by midwives. There are 3,000 midwives at present reporting births to the State Registrar of Vital Statistics, and they supervised the birth of more than 12,000 babies last year. More than half of them cannot read and write and are obliged to sign their names by marks. There is not a midwife in Kentucky who was ever given an hour's instruction except by some other equally untutored and unskilled teacher. Most of these women are ignorant, dirty and are really a greater danger in the lying-in room than would be a totally inexperienced person who would do nothing but sit by the bedside and hold the hands of the suffering woman.

At present blush most physicians and most educated people would say abolish the whole bunch and get rid of this danger. This would seem all the more necessary when it has been found that these women are not really midwives at all, but are simply old "grannies," who have taken up the practice of midwifery in order to help out a more or less precarious livelihood.

It must be realized, however, that midwives like other superstition and community customs, can only be eradicated by years of education and training, and then only by the substitution of something better. One of the most serious charges brought against our own profession is that as the doctor becomes more successful he is inclined to give up obstetrics practice, and it as an unquestioned fact that the average medical student is more poorly trained in obstetrics, which will be one of the most important branches of his practice under almost any circumstances, than in chemistry or any other of the what may be called the pure sciences in medicine. Of course, this must be remedied in the medical schools.

Under the law passed in 1920, county boards of health are instructed to instruct, examine and issue certificates to midwives. It has been possible in the past few years to enforce this law only in the counties where there are all-time county health departments, but with the establishment of the Bureau of Child Hygiene, with an ample appropriation through our co-operation with the U. S. Children's Bureau, under the Sheppard-Towner Act, and through our close co-ordination with the county medical societies to begin a real course of instruction for these "grannies." Kentucky is fortunate in having secured the services of Dr. Annie Veech for this work. Dr. Veech's extensive experience in the practice of obstetrics and in the treatment of the disease of children and in medical school inspection in this country, and her experience in the organization of similar work in France during the war, especially qualify her for leadership in this respect. The confidence the medical profession of the State has in her was reflected in her election of vice-president of the State Medical Association.

In inaugurating this work Dr. Veech first appears with a meeting of the county medical society and explains the working of the system. She gets members of the society to volunteer to assist in the necessary training of the "grannies." These women assemble at the county seat and specially trained and experienced nurses show them not only the simple methods of cleanliness necessary for all who are about the lying-in room and how to make and keep clean the beds and linens of their patrons, but especially teach them the signs and indications which should cause them to call for a physician. This is really the most important feature of this work.

During the summer months, work will be intensified in those sections of the State where the roads are worst and county societies are urged to help in making this one of the most effective pieces of professional work which has been done anywhere.

THE EDUCATION OF THE PUBLIC.

One of the best pieces of work which has been done by the American Medical Association is the preparing, through its Propaganda Department, of four books, a supply of which should be in the hands of every physician.

One of them is entitled "Female Weakness Cures"; another, "Epilepsy, Cures and Treatments"; the third, "Obesity Cures," and the fourth—in many ways the most interesting—is "The Nostrum and the Public Health and Truth in Advertising Drug Products." The last named costs ten cents a copy and the others 15 cents. A physician can very frequently give one of these little pamphlets to his patients who are being mistreated by one of those patented abominations, with a result in education that is gratifying.

They are quite readable, and we are calling the attenion of the physicians of Kentucky to them with the hope that large numbers of them can be in the hands of the intelligent people of the state who will be interested in them.

A NOTEWORTHY REPORT.

There is probably no commercial organization in the world which has more extensively and practically extended the benefits of modern science for the protection of the health of its employees than has the United Fruit Company. This organization supplies the United States with most of its bananas and with practically all of the raw materials from which chocolate and cocoa are made.

Naturally, from the character of its products, its farms and plants are located in the tropics and they have had to solve the problems that are presented there. These are complicated by the fact that many of their employees are natives who have the same inherited disregard for sanitation that is frequently found in our temperate clime. The Annual Report of the Medical Department has just come to our desk. The chief of this department is Dr. William E. Deeks, the distinguished physician of New York, who was formerly Chief of the Medical Service of the Panama Canal and who is one of the most distinguished physicians in the world. The Fruit Company's service is divided into nine large divisions, each of which has a splendidly equipped hospital with field dispensaries distributed where necessary.

Of course, the most prevalent disease discussed is malaria and there were 36,278 cases under observation with only 167 deaths. Considering the mass infection frequently met in the tropics, this is a remarkably low death rate. The discussion of the prevalence of malaria and other tropical diseases is worthy of the attention of any student of tropical medicine.

From the editor's personal experience in the tropics, he confidently looks forward to the time when it will largely supply the temperate zones with food and when it will be the playground as well of the world. In order that this may come to pass it is of special importance that the final chapter of this interesting report, entitled "General Recommendations Concerning Sanitation and Prevention of Disease in the Tropics," be read widely by those contemplating going there. The report is beautifully illustrated and it will be sent free of charge upon application to the United Fruit Company, Boston, Mass.

SCIENTIFIC EDITORIAL

THE TACHYCARDIAS AND CARDIAC ARRHYTHMIAS.

(a) *The Use of the Electrocardiograph.*

Electrocardiography is a modern scientific method of cardiac examination by means of which cardiac defects can be differentiated more certainly and consequently treated more intelligently. With it certain harmless irregularities are easily distinguished from others which would indicate serious cardiac injury. The electrocardiogram is based on the fundamental physiological fact that all muscles in contracting produce electrical currents of their own.

It was demonstrated as early as the year 1856 by Kolliker and Mueller that the heart at each contraction develops currents of its own. A string galvanometer suitable for taking clinical electrocardiograms was designed in 1903, the invention of Einthoven, a Dutch physiologist.

The normal electrocardiogram does not exist. Variations in certain normal adults occur within certain limits. As a whole, however, the electrocariiograms of normal individuals resemble one another in the main and form a combination of several an ideal form has been evolved.

The importance of the method is dependent on the constancy of the individual electrocardiograms. With the same instruments and technique the records will not vary when taken by different operators. The personal equation does not enter in obtaining records as with other graphic methods. They are taken without difficulty and with little discomfort to the dyspnoeic patient. From time to time, the changes manifested in record correspond to changes in the myocardium. With no pathological changes in the myocardium the electrocardiogram tends to remain constant also. The electrocardiogram of a physiological heart beat consists of a series of deflections, some of which are rapid and of short duration while others are slow and of longer duration. They have been named in a purely empirical fashion P. Q. R. S. T. The electrocardiogram opens with a blunt summit P., which occupies presystole and is due to contraction of the auricles. Following upon this deflection the string shadow either maintains the zero position or dips somewhat. These positions of the electrocardiogram are spoken of as the auricular complex. This complex begins with the upstroke of P. and terminates with the opening of the ventricular complex. The latter varies in the number of its component deflections, in its full form it comprises a small downward deflection, R. a steep, tall and pointed summit, S. a steep depression of variable depth and T. a broad rounded summit.

The period occupied by these is approximately that of the ventricular systole to which they are due. The earliest sign of contraction in the ventricle occurs a little after the commencement of R. and usually during its upstroke. The contraction ends where T. passes into the horizontal line of diastole or within a few hundredths of a second of this point. The complete beat of a normal heart consists of a contraction of its chambers in an orderly sequence.

(b) *The Conduction System of the Heart.*

The wave of contraction starts in a small and newly discovered mass of tissue the sino-auricular node the Keith-Flak node which lies embedded in the upper and anterior end of the sulcus terminalis. The sulcus terminalis runs from the junction of the right auricular appendix and the superior vena-cava towards the inferior vena-cava. The tissue of the node consisting of a specialized net work of muscle cells richly supplied by the nerves of the heart which enter in this region lies therefore at the mouth of the superior vena-cava and is embedded in the right auricle. The contraction which commences in its neighborhood spreads through the walls of both auricles and is transmitted to a relay station called the Node of Tawara, which is located in the septum of the right auricle and ventricle. The orderly rhythm of the whole heart takes its origin in the sino-auricular node to which Lewis has applied the term pacemaker. The pacemaker is under the control of the vagi or inhibitory nerves of the heart and they normally exert a considerable restraining influence upon the stimulus producing center. The Nodes of Tawara on account of its location is frequently known as the atrio-ventricular node, and is often referred to as the A-V node. This node, about a half inch in length, terminates in the bundle of His. The bundle in turn divides into a right and left branch and finally spreads out into a number of smaller branches with terminal arborizations known as the Purkinje fibres in the subendocardial myocardium.

(c) *The Cardiac Nerves.*

The heart is controlled by the action of two sets of nerves, the vagi containing both sensory and motor zfires arising from nuclei in the medulla and the accelerator nerves from the rami communicantes of all the cervical and four upper thoracic nerves which pass into the superior, middle, inferior and stellate ganglia.

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L. K. BALDAUF.

Cystic Kidneys—Rumpel states that in two of his five cases the cystic degeneration was far advanced in both kidneys and both patients died. A third patient is in bad condition with his one cystic kidney; the other kidney had been removed long before. The fourth patient is still in good health twelve years after the removal of one kidney for cystic degeneration. The other kidney seemed to be sound, as also in a second nephrectomy case. His experience testifies that cystic degeneration usually affects both kidneys, but generally in such a different degree that operative measures may be justified. In a recent compilation of 127 cases of nephrectomy for this cause, the immediate mortality was 30 per cent. The results are growing constantly better with improved technic. The immediate mortality of nephrectomy has averaged 45 per cent; partial operations have very rarely been done, and the outcome is not known. Decapsulation plus excision of the cysts has been followed by improvement in the few cases that have been published. Rumpel tried it in one of his cases, but found it was not feasible and concluded with nephrectomy.

ORIGINAL ARTICLES

THE DIAGNOSIS OF TERTIARY SYPHILIS.*

By E. E. Butler, Louisville.
Associate in Medicine, the Solomon Clinic.

Modern day methods of diagnosis, as practiced in clinics, where the plan of "Group Medicine" is followed, demonstrate that many pathological conditions previously labeled heart diseases, nephritis, cardio-renal disease, cardio-vascular disease, etc., are in actuality syphilis in its late or tertiary stage.

The manifestations of syphilis, in the tertiary stage, are so numerous and varied that it is most often impossible to make an accurate diagnosis without employing all of the diagnostic means available. In group medicine all of the diagnostic means available are employed, and it is noteworthy observation that a large percentage of cases examined show some, and often many, late syphilitic manifestations.

I have carefully gone through the case files of the Solomon Clinic, choosing alphabetically 1,000 cases which had undergone a complete physical and laboratory examination. My purpose for doing so was to ascertain the percentage of cases of syphilis in the 1,000 cases. I also desired to know what percentage was of the tertiary type and of this type what percentage presented positive or negative history, positive or negative physical findings, normal or abnormal mental symptoms and positive or negative Wassermann test.

While getting this data it occurred to me that it would also be of interest to note and tabulate the conditions with which tertiary lues is concomitant. In a way of explanation as to the manner of making this tabulation I will state that for a positive history I included those case in which there was: (1) History of chancre and secondaries; (2) history of genital sore without evidence of secondaries; (3) history of several gonorrhoeal infections; (4) history of several non-induced miscarriages. For a positive physical finding, I included:

(1) Enlarged or palpable epitrochlea glands.

(2) Palpable, beaded, chain-like, discrete inguinal glands.

(3) Abnormal reflexes.

(4) Hypertension in a person under forty years of age.

(5) Dilated aorta-aneurism.

(6) Scars on genitalia, and

(7) Congenital syphilitic manifestations.

The result of this tabudation is as follows:

Syphilis—all types, 24% Primary, 2% Secondary, 4% Tertiary, 18%	Rercentage Tertiary Syphilis with positive history, 46% With negative history, 54%	Percentage Tertiary Syphilis with positive phys. findings, 84% With negative phys. findings, 16%	Percentage Tertiary Syphilis with abnormal mentality, 12% With normal mentality, 88%	Wassermann readings in Tertiary Syphilis: Negative, 10% 1 Plus, 6% 2 Plus, 38% 3 Plus, 26% 4 Plus, 20%	Most frequent concomitant conditions: Cardio-vascular renal, 24% Anemia, 12% Hypertension, 10% Paresis, 8% Aneurism, 2%

As you will note, this is a rather strikingly high percentage. However, there are many factors which enter into the making of such a high percentage, namely: (1) A routine Wassermann test was made on every patient; (2) a large percentage of those examined were "chronics," having gone from one physician to another without being subjected to a careful and accurate history, thorough physical examination or a Wassermann test; (3) some of this group were partially disabled, diseased ex-service men who, as a rule, will show a high percentage of syphilis. The result of this tabulation demonstrates that syphilis in some of its forms is a very frequent pathological condition and one which the general practitioner, surgeon, or internist should always keep in mind when attempting to make a diagnosis.

In making the diagnosis of tertiary syphilis, first the history of the patient is of importance. At times, it is extremely difficult to get a trustworthy account from the patient. I have learned to pay very little attention to a negative history, it being my observation that more frequently a negative history is obtained, than a positive one. Whether patients desire purposely to mislead or whether they have forgotten, or did not observe the early symptoms, such as chancre or secondary rash, I do not know. I am inclined to believe that they forget having had these early signs. We must also bear in mind the possibility of congenital syphilis, of extra-congenital infection, of intra-urethral sore, and of intra-uterine chancre, any one of which may have occurred unknown to the patient. Many cases are recalled as having come under our observation, with unmistakable symptoms and physical findings, and with the presence of a strongly positive Wassermann, in which the patients seemed astounded when told of their true condition. It is interesting to note that in several of these cases the patients were physicians.

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*Read before the Jefferson County Medical Society.

The symptoms and signs of tertiary syphilis are many, varied and often unusual. Frequently they are those of anemia, viz., "a tired out feeling," inaptitude for work, palpitation of the heart and general weakness. Pain in the thorax, worse at night or early in the morning, pain in the thighs, pain in the testicles, headache, backache, are not uncommon symptoms. Premature loss of sexual power is frequently one of the complaints. Other and frequent symptoms are those of hypertension, the luetic infection causing headache, vertigo, dizziness, dyspnoea, etc.

After an accurate history is obtained there should follow a complete physical examination. This should include:

(1) A general physical of the entire body.

(a) The appearance of the patient. Note the development and nutrition, condition of hair, skin, nails and teeth. The characteristic alopecia of syphilis may be present. The skin should be closely observed for evidence of previous ulcers, eruptions, fissures and evidences of poor resistance of the outer layer. Likewise, the bones and joints must not be overlooked as a periostitis, old or recent, can often be found. The anterior surface of the tibia is the site most frequently affected. I have frequently observed evidence of pathology, the result of syphilis, in the costo-chondral junction of the ribs and in the vertebral column. Several cases of syphilitic ostitis and periostitis of the vertebral column, which I have in mind, were diagnosed from the x-ray films as Potts' disease, but with the finding of a strongly positive Wassermann reaction, active anti-syphilitic treatment was undertaken, resulting in prompt benefit and quick recovery.

(b) Gait. The gait should be particularly noted. There may be slight ataxia, which is often one of the first symptoms of tabes dorsalis. Or there may be a slight spastic gait resulting from a previous paralytic stroke, which in a person under forty years of age most always may be assumed to result from a previous syphilitic infection.

(c) Reflexes. Testing of the reflexes should never be omitted. This can quickly be done and often proves invaluable as a diagnostic aid. The absent or very sluggish knee-jerk is one of the very first symptoms of tabes or tabo-paresis. The hyper-active patella tendon is often associated with cerebral syphilis, particularly with involvement of the meninges. Similarly, the cremasteric reflex is often absent in tertiary syphilis.

(d) Lymphatic Glands: Small, non-suppurating glands, occurring in the neck and about the occiput, and enlarged or palpable epitrochleas, in adults, are suggestive of a luetic infection. Likewise, the presence of bilaterally discrete, beaded, chain-like, palpable inguinal glands should always be regarded as suspicious evidence.

(2) Examination of eyes, ears, nose and throat is of exceeding importance. The finding of interstitial keratitis is one of the more or less positive evidences of lues, and should cause search for other manifestations. Iritis is a fairly common result of syphilitic infection. I recall a recent patient who had been treated by several specialists without benefit. A Wassermann test, made as a routine procedure, showed the true etiology, which antiluetic treatment confirmed. Ptosis, the result of paralysis of the third nerve is often the result of syphilis, while falling in of the bridge of the nose can almost always be considered a tertiary manifestation. Perforation of the nasal septum may occur, and, at times, unknown to the patient.

(3) Examination of the teeth while not often of value as a diagnostic aid may reveal the charactertistic notched incisors of congenital syphilis.

(4) Examination of the thorax and abdomen very rarely is of value in the diagnosis of tertiary lues, but syphilis of the lungs and also of the stomach are by no means rare findings. During the past three and one-half years I have seen seven cases which presented typical clinical symptoms of cancer of the stomach with pyloric obstruction and with physical and x-ray findings corroborating this diagnosis. A Wassermann test in these cases being strongly positive, intensive anti-luetic treatment was instituted with prompt improvement and gradual recovery.

(5) Examination of the rectum: Syphilitic stricturing of the lumen of the rectum is not as uncommon sequelea. It is sometimes difficult to differentiate tubercular from syphilitic stricture and either or both from cancer. Histological examination of an excised piece of tissue should be done.

(6) Examination of the genito-urinary organs. Chronic orchitis, often syphilitic, is usually slow and painless. A slightly irregular induration of the testicle, with little if any increase in size, suggests the running of a Wassermann and further careful history and examination. It is often necessary to differentiate gumma from tuberculosis of the testicle, and it is well to know that syphilis makes its appearance in the body of the testicle while tuberulosis begins in the epididymis.

The Wassermann reaction is a great aid and should be routinely made on all patients, presenting themselves for accurate diagnosis. It sometimes cleans up the diagnosis in cases in which the findings were only suggestive and in which, had it not been employed, the exact diagnosis could not have been made. However, in tertiary syphilis it is very frequently only mildly positive and sometimes negative. Many collaborators state that the Wassermann test is negative in about 20% of cases of tertiary syphilis, but from my experience, it is my impression that this percentage is really too high. The tendency for the physician is to accept the Wassermann report as final. This should never be done unless it corroborates the physical findings. In tertiary syphilis the *physical findings are of more value than the Wassermann* reaction. For instance, positive or very suspicious physical findings with a negative Wassermann are of more value than negative physical findings, with a mildly positive Wassermann reaction.

The patient's attitude to the Wassermann report is not always in unison with the clinician's and this is to be deplored. Many of you probably will recall patients, with positive or very suspicious physical findings, who refuse treatment because the Wassermann test is negative or because the test was reported mildly positive by one laboratory and possibly negative by another.

The provocative Wassermann is indicated in the preceding type of cases and I have employed it frequently. However, it has been my experience that it does not give uniform or satisfactory results. Spinal puncture and examination of the spinal fluid is a scientific procedure frequently necessary to clear up the diagnosis. It should be employed more frequently, since it is a great aid and when properly performed should cause no ill effects. The examination of the spinal fluid should include cell count, globulin test, Wassermann test and Lange's colloidal gold test.

In conclusion, let us refer to the type of cases which present (1) either a positive history, with suspicious physical findings and a negative Wassermann, or (2) cases, which present negative history, strongly positive physical findings and negative Wassermann. In this type of cases the therapeutic test is of value in making the diagnosis. By administering anti-leutic treatment we often note the symptoms clear up and disappear. The employment of this procedure should not be reserved, since anti-luetic treatment, when properly administered, should cause no ill effects, and it is better that treatment be attempted for many non-syphilitics than that one syphilitic should go untreated.

I have chosen two cases, illustrative of tertiary syphilis, as follows:

Case No. 806—Mr. W. R. W., referred by his physician for examination and diagnosis.

Symptoms Briefly:

(1) Pain, frequently in left kidney region, left testicle and down penis.

(2) Pain, at times, in the left wrist at site of the radius articulation.

(3) Pain, of a dull aching character, in the left big toe and often extending to the hip.

(4) Frequent urination, by day and by night.

(5) Loss of sexual power and desire.

Family History: Father died at age of 60 years, "stomach trouble and dropsy." Mother died at 55 years—heart disease. One sister living, has cancer of the breast, for which two surgical operations at the Mayo Clinic have already been performed. Has three brothers and two sisters living, all in good health.

Past History: Was a robust, healthy child, having all the usual childhood diseases, without complications or sequlae. At age of 17 he became infected with syphilis, for which he was treated by his uncle and other physicians, with mercury. Has been to Hot Springs for treatment three times in the past twenty years, last time eight years ago. No operations. Fracture of left arm and right clavicle when a boy. No serious illness.

Hereditary History: Negative for tuberculosis, nervous diseases; positive for kidney disease and malignancy.

Personal History: Occupation, baker since 17 years of age until recently, when he has been proprietor of a hotel. Heavy drinker from age of 25 to age of 50 years; drank as much as one-half pint whisky daily for twenty years. Smokes very little, moderate exercise, appetite good, sleeps good, bowel costive, home environment, partakes of mixed diet; never a heavy eater, bladder function, hyperactive, no cough or sputum, no oedema, dyspnea on exertion, digestion not good, no nausea or vomiting, but much belching after meals, no fever, chills, or sweats, no emotional disturbances.

Marital History: Married twice, last time three years ago; four children by first wife, living, in good health; this wife had one miscarriage, one child dead of "scrofula."

Venereal History: Chancre at age of 17, as previously stated.

CLINICAL AND LABORATORY FINDINGS.

January 20, at 11:30 a. m., temperature 98.6, pulse 86, respiration 20, blood pressure, systolic 122, diastolic 88.

Urine: Four specimens were examined, in

each of which was found a faint trace of albumin and, in the centrifugal sediment, an occasional leucocyte, an occasional squamous epithelial cell, and a few hyaline casts. Otherwise the urine showed no deviation from the normal.

Blood: Hemoglobin, 90%; erythrocytes, per cum mm., 4,560,000; leucocytes, per cu mm., 6,400; polymorphonuclears, 64%; lymphocytes, large 8%, small, 25%; transitionals, 2%; basophiles, 1%; eosinophiles, none; parasites, none; pathological cells, none found.

Wassermann: Positive, 2 plus..

GENERAL PHYSICAL.

Description: Patient is a well developed and nourished, somewhat obese, white male; present weight 203 pounds, usual 195, best 205 pounds; height, 5 ft. 10 in. Skin, normal; mucous membranes somewhat pale, eyes, gray; hair, gray.

Teeth: Bad. Gums, unhealthy. See report of special dental examination.

Thorax: Good development and nourishment; no scars or depressions. Heart, intermittent, at times, during the examination. Rate slightly accelerated; sounds somewhat faint. Lungs, negative.

Abdomen: Considerable obesity and slight ascites. No localized areas of pain or tenderness. No masses or pulsation found. No herniae.

Rectal examination: Negative.

Prostate gland: Not enlarged.

Glandular system: Epitrochlea and inguinal glands are bilaterally palpable.

Muscular system: Flabby.

Joints: Negative.

Osseous system: Negative.

Reflexes: Patella tendon sluggish on the right side and absent on the left side. Rhomberg negative. Pupils react to light and accommodation. Babinski and Oppenheim negative.

SPECIAL EXAMINATIONS.

Dental Department: Reports pyorrhea alveolaris present, in the advanced stage. The entire mouth is unclean and the teeth badly need cleaning.

X-ray of teeth: Apical infection of the superior left third molar and the inferior left second molar is present; these teeth should be extracted.

Eye, ear, nose and throat department: Vision, right eye, 29-30; left, 20-20; otherwise no deviation from the normal. Ears, nose, and throat normal.

Kidney function test: First hour excretion, 45%; second hour, 15%.

X-ray examination of the thorax: Lungs, apices and lung fields show moderate density, though it is evenly distributed and there are no localized areas of increased density. Hilus shadows moderately thickened. No large glands. Diaphragm, position high; mobility, free; excursion, 1 inch; contour, normal. Heart, "transverse," on account of the high position of the diaphragm. Aorta, broad.

X-ray of gastro-intestinal tract: Oesophagus, normal as to position, patency and peristalsis. Stomach, normal tone; steer-horn shape; shows no filling defects or hour-glass contraction; its position is oblique-high; size, small; mobility and peristalsis, normal; no incisurae are seen; evacuation is complete at six-hour period. Pylorus, position high, to the right; mobility, patency and opening normal. Doudenum, complete visualization; contains no residue; position, mobility, and peristalsis, normal; bulb small and regular. Appendix, not visualized. Colon, normal in position, mobility, patency and peristalsis. Rectum, patency, normal.

Conclusions: Negative gastro-intestinal tract (x-ray).

Summary of Diagnosis:

(1) Syphilis, tertiary. Involvement (a) central nervous system, (b) vascular system.

(2) Cardiac asthenia.

(3) Nephritis, type, "Chronic Parenchymatous," now subacute.

(4) Pyorrhea alveolaris.

(5) Dental caries.

(6) Abscessed teeth.

(7) Obesity.

(8) Ascites.

Case No. 542—Mr. S. G.; male; age 38. Comes for diagnosis.

History Briefly: Patient states that in 1906 he had a small sore on the glands penis, followed in about six weeks by an eruption on his body, for which he consulted a physician in Evansville, Ind., who diagnosed the condition as syphilis. He was under treatment three to four months, taking medicine, per orem, only. No further treatment until recently, when he consulted his physician, who had also administered internal treatment before referring him to us. Wassermann tests, made about two months ago and three weeks ago, reported negative.

Patient Now Complains Of:

(1) Soreness throughout thorax.

(2) Cough, with very little expectoration.

(3) Sensation in back, as if needles were sticking into the flesh, noticed at time.

(4) Frequent headaches.

(5) Constipation.

Past History: Always had good health until present symptoms began. Had the usual childhood diseases, without complications or sequelae. No serious illness, no accidents, no surgical operations.

Family and Hereditary History: Negative.

Marital History: Married ten years; wife, age 31, in poor health. Has four children living, who, he states, have rash on body frequently. Wife has had two miscarriages. First pregnancy resulted in miscarriage at three monhts, then two children were born, followed by another miscarriage, after which two more living children were born.

Personal Habits: Never a user of alcohol; smokes cigars, but not excessively; home environment; sexual habits, normal. Partakes of mixed carbohydrate and protein food in moderate quantity. Appetite fairly good. Sleeps fairly well. Bowels sluggish. Bladder function normal.

Additional Data: Cough, sometimes; sputum, very scant; edema, none; dyspnea, on exertion; digestion, fairly good; no nausea, belching or vomiting; no heartbburn; bloating, at times; no fever, chills, or sweats; headaches, frequently, in the frontal region; no backache; emotional disturbances, none, but patient worries much about his condition.

LABORATORY FINDINGS.

At 2:30 p. m., January 29, 1921, temperature is 98, pulse 84, respiration 20. The blood pressure is systolic, 116; diastolic, 76.

Urine: Three specimens were examined, which were negative, except for first specimen: Finding in the sediment a few leucocytes, an occasional squamous epithelial cell, one hyaline cast, and one finely granular cast. Second specimen: (Portion of a 12-hour mixed sample.) Shows no pathology, except the specific gravity is somewhat above normal, being 1036. Third specimen: Shows no deviation from the normal, except that several finely granular casts are found in the centrifugal sediment.

Blood: Wasserman reads, positive, two plus.

PHYSICAL EXAMINATION.

Description: The patient is a white male, age 38; a native of Poland; weight, 188 pounds, usual 190 pounds, best 194 pounds; height, 5 ft. 4 in. General appearance, robust, obese. Skin, normal. Visible mucous membranes, slightly pale. Tongue, clean; no tremor.

Teeth, fairly good; gums healthy. Thyroid gland, not enlarged.

Thorax: Shows good musculature, with an increased amount of adipose tissue, symmetrical; respiratory movements, full, free and equal on both sides..

Heart, rate and rhythm, normal. Aortic and pneumonic sounds are somewhat faint. Aortic sound becomes somewhat snappy, after exertion. No murmurs heard. Apex beat palpable in fifth interspace, one-fourth inch outside left nipple line. Lungs, negative.

Abdomen: Shows increased amount of adiposity; no scars, masses or pulsations; no areas of sensitiveness or guard; no hernia. Glandular system, epitrochleas,, bilaterally palpable. Muscular system, well developed. Joints, negative. Osseous system, negative. Reflexes, patella tendon and biceps, sluggish. Rhomberg, Babinski and Oppenheim, negative. Pupils react to light and accommodation.

SPECIAL EXAMINATIONS.

Eye, Ear, Nose and Throat Department: Reports negative findings.

X-Ray Thorax: Apices and lung fields clear, Hilus shadows not enlarged, of normal density and contain no enlarged glands. Diaphragm, mobility, free; excursion, 1½ inches; dome, normal, but high. Aorta, broad. Heart, position, transverse (on account of the high position of the diaphgram). X-Ray Gastro-Intestinal Tract: Negative findings.

Summary of Diagnosis:

(1) Syphilis, tertiary.

(2) Nephritis, subacute in its intensity; apparently a so-called beginning "Chronic Parenchymatous."

Discussion: The preceding diagnosis and recommendations were made and sent to the referring physician before the result of our Wassermann test had been reported. From the history and from the physical findings, we would have been of the same opinion even though the Wassermann report had been negative. Many such patients are found whose treatment has been very imperfectly carried out. Though syphilis is a "treatable disease," it is frequently neglected until organic changes come about which leave indelible marks.

Herniotomy With Regional Anesthesia.—Regional anesthesia with procain-epinephrin solution is regarded by Labat and Meeker as the method of choice in inguinal herniotomy and should be used generally instead of only for patients who are unsafe subjects for general anesthesia. For inguino-scrotal or bilateral herniotomy in very obese patients, spinal cocainization is easier, quicker, and as safe as regional field block. A hypodermic of morphine and scopolamin one hour before anesthesia is induced is of aid in calming nervous apprehension.

REMARKS ON PREVENTABLE BLINDNESS.*

By I. A. LEDERMAN, Louisville.

There are, according to available statistics, approximately one hundred thousand blind people in the United States. Various observers estimate the amount of preventable blindness to range from thirty to fifty per cent of this number. This means that from thirty to fifty thousand persons are unnecessarily blind, that their blindess is due to some cause which is, or ought to be, preventable. The causes of blindness fall naturally under three heads: (1) Heredity, (2) Disease, and (3) Accidents.

Heredity—Congenital anomalies are well known and include such conditions as complete absence of the eyeball, microphthalmos, magalophthalmos, coloboma of the iris, choroid and optic nerve; retinal degeneration, either accompanied or followed by optic atrophy; congenital cataract, accompanied by retinal changes which preclude the possibility of successful operation; retinitis pigmentosa, albinism, atrophy of the optic nerve, high myopia, etc. It is stated that hereditary eye disease follow the well known Mendelian law

At the present time, in the Kentucky School for the Blind, fifty-four per cent of the children are blind from congenital and hereditary defects. It is a source of chagrin that it is impossible to obtain intelligent family histories. The opportunity of an interesting study is lost to us for this reason. The family tendency is plainly shown from the fact that among ten cases of retinal changes, one family is represented by three children, another by two, with identically the same ophthalmoscopic changes.

In nineteen cases of congenital cataract, two families have two, one family, three, and another, five, thus accounting for twelve of the nineteen cases.

Malignant disease is a rare cause of blindness. Harman in his recent article quotes two cases only, one a child with glioma of retina in both eyes, the other a man with sarcoma of one eye, the other eye having been lost with embolism of the retinal artery.

There are no accurate figures as to the proportion of hereditary blindness to the total number, but it probably is small. How many of these are due to syphilis, and whether acquired defects of the eye are ordinarily capable of transmission, is a mooted question. In at least one condition consanguinity of parents has been known to be a rather constant factor, this is retinitis pigmentosa. There are at present five children at the school who are blind from this condition. In none of these could a history of consanguinity of parents be established. Of these five, four belong to two families. One family is represented by a sister and brother with high myopis.

The most interesting and conclusive work in tracing family transmission has been done with reference to cataract. Nettelship, Hansall, Loeb and others, having carefully worked out the pedigree of a number of families, proving conclusively the hereditary tendency of juvenile cataract. While little difficulty is encountered in recognizing hereditary blindness, very little has been accomplished in its reduction.

Disease.—The largest proportion of blindness results from disease. Certain of these diseases are of a general nature, some of them peculiar to the years of childhood and youth, as scarlet fever, measles, mumps, meningitis, typhoid fever, scarlet fever, smallpox, influenza, whooping cough, erysipclas. Others are infectious and especially of venereal origin. The latter seem to have an extended influence on the organs of vision. Syphilis is said by some to be the cause of all congenital blindness as well as a potent influence in the acquired form. Ophthalmia neonatorum has been the one great cause that, in the past, has been held responsible for fifty per cent of blindness in children. At present this constitutes twenty-six per cent of the causes in the Kentucky School for the Blind, a much too high average when we consider that it should be altogether preventable.

There is but two per cent of trachomatous blindness in the school. This does not mean that other cases may not exist in the state. In spite of efforts to enroll every blind child, probably not more than fifty per cent enter the school, and what change this number would make in our statistics is mere conjecture. It is well known that trachoma in the advanced form is comparatively rare in children, that while it may have its inception in early life, most cases of blindness from this source come after years during which the disease is slowly passing through its several stages.

In adult blindness by far the largest single cause is glaucoma and to our regret little progress has been made in its prevention or cure. Senile cataract does not properly come under our consideration, as it is usually dealt with successfully unless complicated by some condition which prevents a restoration of vision.

Interstitial keratitis and rarely phlyctenular keratitis, uveitis, choroidal lesions, disease and hemorrhages of the retina, optic nerve atrophy, embolism and thrombosis, are the most prominent remaining causes of blindness due to disease.

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*Read before the Louisville Medico-Chirurgical Society.

Syphilis, tuberculosis, diseases of the kidney, diabetes, disease of the brain and of the spinal cord, arteriosclerosis, are responsible for a certain number of cases of binocular blindness. Intraocular disease from focal infection and from disease of contiguous structures, such as the nasal sinuses, are usually and fortunately confined to the one eye, so far as our experience in the past has shown.

Accidents.—It is difficult to estimate the total number of eye injuries in the United States, as figures vary from forty-nine thousand, gathered from Best's statistics, to one hundred and sixty thousand a year, furnished by the National Committee on the Prevention of Blindness. Of this number there are probably one hundred cases of total blindness in both eyes occurring annually. It has been estimated that in this country from ten to fifteen thousand persons have been blinded by industrial accidents alone. Posey places the figures at ten thousand, and states "apart from the suffering and unhappiness entailed by these accidents, which cannot be appraised in dollars and cents, it has been estimated that it will cost the nation nearly ten million dollars to care for these blinded persons throughout the remainder of their lives." At the Kentucky School seven per cent of the number of blinded has resulted from accidents.

While a great majority of injuries occur in various industries, quite a respectable number are accounted for by the so-called "household accidents.." The sharp pointed scissors, the sharp bladed knife, the hat pin, the writing pen and the pencil, become deadly weapons when appropriated by a child to be used as a toy. The air rifle, the sling shot, the use of fireworks, have taken their toll, but since the latter method of celebrating has been curtailed, accidents from this source have become rare. Other dangers comprise burns and scalds, such chemicals as ammonia, concentrated lye and lime. Damage to the eye occurs from falls, collisions, and contact with various sharp articles. Gunshot wounds, occasioned in hunting and otherwise, impact with baseballs, tennis and golf balls, may cause serious injury to the eye.

A few years ago several corneal burns of a serious nature were reported from the cutting open of golf balls, these having a liquid core. The curiosity to see what was inside resulted in the discovery of a strong alkali, which spurting in the eye caused these serious burns of the cornea. I am informed that the manufacture of these balls has been discontinued. Sympathetic ophthalmia, though uncommon, is of such dire consequences that its possibility must be constantly borne in mind in certain types of eye injuries. Three cases of blindness from sympathetic ophthalmia at present in the Kentucky Blind School are indeed a sad commentary.

Blindness from drugs and poisons is rare, though the Volstead law has brought to our notice again the fatal effects of wood alcohol, both upon sight and life itself. We have no record of the number of blind added to the list from this cause in the past two years.

With reference to blindness from industrial accidents: The various hazards to the eyesight of individual workers are found chiefly in the following industries and occupations: The manufacture of iron or steel; machine operations, chipping, grinding and polishing; riveting, welding and cutting; mining and quarrying; occupations in which there is exposure to irritating and poisonous dust, fumes and gases; the chemical industries and occupations, involving handling of acids and chemicals; the metallurgic operations, where there is great exposure to intense light and heat; glassmaking and sand blasting; wood working operations; the garment trades and agricultural pursuits.

While statistics permit only an approximate statement as to the relative importance of the eye hazards in the various occupations it seems that throughout the United States the industrial hazard is greater to those engaged in mining and quarrying. Next comes machinists, iron, and steel workers and steam railway employes, followed by the various trades, exposing workmen to intense heat, electricity, chemical burns, etc.

Gifford informs us that in all but the large manufacturing centers the majority of serious eye accidents occur in agriculutral laborers. The frequent use of tools in repairing machines, handling barbed wire, baling wire and chopping wood are frequent causes. Scratches of the cornea by twigs, beards of wheat and blades of corn are of frequent occurrence. It is said that caterpillar hairs when entering the conjunctival sac produce a particularly severe reaction which may endanger the globe. These accidents are rendered specially dangerous by the inconvenience of obtaining prompt medical attention. The delay, with consequent infection, has caused the loss of many eyes which otherwise might have been saved.

The nature of the eye injuries varies from simple foreign bodies on the eyeball or a simple lesion of the conjunctiva to the more serious forms, such as infected ulcers of the cornea, severe burns of the cornea and conjunctiva, perforating wounds of the eyeball, foreign bodies in the eyeball and the effects of severe contusion, such as rupture of the eyeball, detached retina, etc. While in many of these cases good or at least useful vision is preserved as a result of prompt and skillful attention, they are liable to the most serious consequences.

The most serious if not frequent class of accidents coming to my notice are those injured in mining operations. The relatively large number of serious cases coming from this source may be explained by the fact that the simple injuries are handled successfully by the mine physician, only injuries of greater degree being referred to the specialist.

In the various shops in and about the city foreign bodies on the cornea are a daily occurrence. These consist of emory, small chips of steel, cinders and so forth, and if promptly removed constitute a minor injury. Frequently harm comes from crude attempts at removal of these bodies. Every shop boasts of an expert, the man who appoints himself a shop oculist, or as Snell calls him, the "mote remover." He may really be adept in discovering and removing most small foreign bodies. However, his technique does not correspond to modern standards and his instruments consist of a dirty finger nail, or probably the point of his penknife, at tooth pick, or a match, which has been carried in his pocket. That more eyes are not lost as a result of this practice it is difficult to understand. I have seen but one eye blinded from an infected ulcer of the cornea, presumably from this source, but there have been a number of milder infections which yielded to treatment. This pernicious practice still prevails in many plants in spite of efforts to prevent it.

How much of the blindness resulting from accidents and injuries is preventable we do not know, but that a very considerable part is so, there is no doubt. Probably the greater part of loss of sight from this source is due to personal carelessness or neglect on the part of the victim, or to conditions of industry. The measures to insure safety, or at least comparative safety, should not be difficult to carry out, provided there is co-operation between the employer and the laborer. In many industrial establishments safety devices have been installed and for the most part it has been done voluntarily. These measures, generally speaking, consist of hoods, screens or shields, the installation of suitable exhaust systems and the periodic examination of tools and machines.

The first aid equipment found in every modern plant should include suitable material for the care of eye injuries. In many plants a trained nurse who has been thoroughly drilled in "first aid" is in constant attendance.

The workmen are very efficiently guarded by wearing protective glasses, goggles, or helmets, depending upon the nature of their work. Special goggles for heat and the light rays are in use. These have for their object the absorption of heat, infra-red and ultraviolet rays. Dr. Nelson M. Black states that most harmful rays are taken care of by yellowish or yellowish-green glass. Red glass is protective against dangerous light and may be combined with yellow, blue, or green and blue. The Crookes glass is effective against ultra-violet rays, and more recently Professor Pfund, of Johns Hopkins University, has constructed a glass in which a layer of gold is combined with the Crookes or other glass of like nature.

Perhaps the most important work along this line has been accomplished by the U. S. Steel Corporation. These measures have been carried out in all the subsidiary plants and the result has been exceedingly gratifying. One large industrial concern, in which the wearing of goggles is obligatory, reports a reduction of 75 per cent in accidents. Some have expressed a fear of injury from breaking glasses. Such injury is exceedingly rare. There were collected in several plants, in the course of six months two hundred and ninety-seven pairs of goggles broken by projectiles which without this protection would have endangered the eye. Not a single serious accident to the eye was reported in that time.

The attitude of the workman himself has been indifferent in the past. He has neglected or refused to take the precautions which had been provided for him. Many really find the goggles uncomfortable, and it is true that they have not been perfected to the point that each individual can wear them with comfort. Education of the laborer, however, is beginning to bear fruit. The better class of workmen, the fellow who has a steady job and prizes it, readily co-operates in suggestions for his welfare and the good of the industry.

Is blindness diminishing? Blindness from all causes is undoubtedly diminishing slowly at the present time. We hope that it will do so at an accelerated rate in the future.

What has been accomplished in the prevention of blindness? Little headway has been made in the prevention of congenital blindness. There is much still to be learned on this subject. Until more light has been thrown on the primary cause of defects we have only to accept the theory of family transmission. Education of the masses, and restriction by suitable laws of the marriage of those having shown the family tendency and of blood relations is our only recourse at present. With the progress of science and eugenics we may hope that eventually a material reduction in this form of blindness may be brought about. I believe syphilitic disease from parental infection is showing a slight decrease, and the future seems brighter for this particular form of blindness.

Blindness from acquired disease has shown a perceptible decrease. Aside from the effects of the laws regulating ophthalmia neonatorum and trachoma three factors enter into the reason for this:

First—Improved methods of diagnosis, therapeutics and operative surgery on the part of ophthalmologist. Second—Improved methods in diagnosis and therapeutics of the medical profession in general. The importance of certain general diseases in their influence on pathology of the eye is better realized. This leads to earlier referring of these cases and the benefits of team work are frequently more gratifying.

Third—An awakening of the general public to the importance of prompt attention by the general practitioner or specialist.

According to such statistics as are available, blindness from industrial accidents has shown more marked reduction than those from all other causes of adult blindness. The reasons are to some degree increased efficiency of the average ophthalmologist because of modern education, but to a larger degree the agencies which have been at work for several years for the betterment of industrial conditions. The object of these organizations is to begin at the source and to prevent the accidents which subsequently may lead to blindness. This is to be accomplished by enlightenment both of the workmen and employer, and a very active propaganda has been carried on to this end.

The National Committee for the Prevention of Blindness is the most representative of these organizations. It covers the entire field, doing very active work in an endeavor to diminish blindness from whatever cause and co-operates with any and all other agencies engaged in the same work.

The stated aims of the committee are:

"First—To endeavor to ascertain, through study and investigation any causes, whether direct or indirect, which may result in blindness or impaired vision. Second—To advocate measures which shall lead to the elimination of such causes, and third, to disseminate knowledge concerning all matters pertaining to the care and use of the eye.

"The committee serves as a clearing house and a bureau of information, renders expert advice, publishes and issues literature of all kinds, conducts lectures and exhibits, secures desirable legislation and co-operates with the various other organizations."

Among the many agencies concerned in spreading the gospel of prudence are: The National Safety Council—a national body composed of employers and workmen. The American Museum of Safety—for the elimination or lessening of occupational diseases, the prevention of accidents and the promotion of industrial welfare through health efficiency and co-operation. The Committee of Conservation of Vision of the American Medical Association: Similar committees of various State Societies. Public health officials, both State and local. American Association of Public Health Nursing; hospitals, general and special, notably the large eye infirmaries of various cities, especially in "follow-up" work. Special schools for the blind; in dissemination of literature and advice to parents. Certain general organizations, outgrowth of the present movement for prevention of accidents, with "safety first" as their slogan. The Conference Board of Safety, representing various manufacturers and trade associations. Several insurance companies.

Conservation of vision is delegated to special committees of such bodies as the National Educational Association, the American Federation of Labor, and the Illuminating Engineers' Society.

Finally civic clubs, especially Women's Clubs, are giving increasing attention to the subject. In our own state, thanks to the untiring energy and enthusiasm of Miss Linda Neville, the Kentucky Society for the Prevention of Blindness of the Kentucky Federation of Women's Clubs, have accomplished a great work in bringing aid to many unfortunates who otherwise would have spent the rest of their days in darkness and desolation.

With all these agencies working together for a common purpose: the prevention of blindness, the conservation of vision and aiding to bring light where there was darkness, may we not hope that the succeeding chapters will reveal brighter pages on the subject of preventable blindness.

DISCUSSION

S. G. Dabney: Dr. Lederman has given us a splendid paper and the subject has been most admirably handled. I was interested especially in the clause in which he spoke of the numerous organizations that are working to the single end of preventing blindness and if possible restoring vision. I read the article which he referred to by Harmon, of London, on the cause of blindness as revealed in the London institutions. It was an interesting paper, yet there were some statements in it which surprised me. There are also some in Dr. Lederman's paper which surprise me a little.

I never saw interstitial keratitis cause blindness. Such cases simply mean that the patients have been treated by ignorant parents and have been neglected. I recall a child who was brought to my office by his mother; he was unable to find the door and walked along with his hand on the wall to feel where the door was. He was nearly blind from interstitial keratitis but recovered with a useful reading eye. Interstitial keratitis is not often the cause of blindness, and I am almost disposed to say it ought never to be a cause of blindness; that is, blindness is easily preventable in an overwhelming majority of cases if reasonably well treated. Of course it is a syphilitic manifestation in the vast majority of instances.

Dr. Lederman spoke of five cases of retinitis pigmentosa. The interesting feature is not that these five cases come from two or three families (that is the rule) but that the patients became blind in childhood. That is entirely contrary to the rule. I doubt whether there is a disease in medicine in which heredity plays a more marked part than in retinitis pigmentosa. There is a gentleman belonging to a well known Kentucky family some of whom have occupied places of distinction and prominence in the community, and others belonged to the poorer and more obscure class. This man happens to be one of the obscure members of a prominent family. He became blind at the age of sixty from retinitis pigmentosa. From his family tree, which extended backward to a time before the Revolutionary war, he could point out every one who had gone blind from retinitis pigmentosa. It is a most strange disease. Blindness does not occur, however, until after middle life. I never heard of anyone going blind from this cause under the age of twenty-one years until Dr. Lederman read his paper.

A lady in the 60's in an adjoining town, mother of one of our well known and highly esteemed city officials, is now about to go blind. I have had her under observation for eighteen years. The last time I saw her she said: "Doctor I was recently in Washington and went to see Dr. Blank; he told me just as you did that I had retinitis pigmentosa and would eventually become blind." The outstanding characteristic of this disease is that blindness always occurs in later life. Another interesting feature is that the patient has night blindness, and this may develop early in life. For instance, this lady stated that when they attended parties in the country, where the family lived during the early part of her life, that neither she nor her brothers could see when it became dark and so had difficulty in getting home. Another characteristic is that the patient finally sees as if looking through the barrel of a gun, the field of vision becoming more and more limited. This is known as tubular vision and is characteristic of retinitis pigmentosa. The field of vision narrows very slowly. At first it does not disturb the patient very much, except he finds he cannot go about comfortably in twilight or after dark. As time goes on the field becomes narrower and narrower, the optic nerve takes on that peculiar yellowish aspect with which we are all familiar, and by the time the patient is fifty to sixty-five he can see a little straight in front of him and then finally blindness supervenes. Heredity plays a strange part in many diseases of the eye. We are familiar with how near-sightedness runs through one family after another. I know of a prominent Louisville family in which for three generations the same eye has been defective. The grandfather, son and grandson have the same optical defect in the same eye.

I do not know what part syphilis plays in the production of blindness. Of course we must distinguish between congenital and inherited syphilis. Hereditary syphilis may readily cause blindness, but I was not aware of the fact that congenital syphilis often caused blindness.

Deformities about the eyeball, anophthalmos, microphthalmos, and other types mentioned by the essayist are not common, but we know they sometimes occur. I do not know that there is any reason to attribute such deformities to hereditary taint.

As to the question of blindness from accidents: I want to emphasize what Dr. Lederman has said about careless handling of eye injuries in factories. A prominent factory in Louisville used to send me one or two cases every week. I lost the business because I had the temerity to write the president a note in which I told him they were taking a great risk in allowing one of their workmen to remove foreign bodies from the cornea the way they were doing; that sooner or later they would lose an eye which would probably cost them in damages far more than they would pay doctors for many years. It is dangerous to allow fellow workmen to attempt the removal of foreign bodies from the cornea. I have seen one eye lost in that way from infection.

Ophthalmia neonatorum: The laws of most of the states require that nitrate of silver be instilled into the eyes of every newborn child and a two per cent solution is generally specified. This strength is often found to produce a great deal of irritation and I believe it ought to be reduced to one percent. The books seem to regard argyrol and protargol as less effective, which is to be regretted if true, because certainly these preparations are far less irritating.

Quite recently I removed the tonsils of a young married woman who was visiting in Louisville but lives in another state. She brought her baby to show me. The child was then eleven months old. She remarked that the baby's eyes were very sore for three months from the silver solution which was used. I told her I had never seen the effect persist for that length of time, but I had seen the eyes very much irritated. She said her family doctor who attended her in the hospital was very indignant about the matter, that he did not order the silver solution used. A two per cent nitrate of silver solution, which is ten grains to the ounce, every now and then produces considerable irritation of the eye. I believe it would be wise to make it one per cent, and I am almost inclined to believe argyrol might be as effective and it certainly causes less irritation.

Dr. Lederman spoke of tumors: So far as I know the only kind of tumor which plays any part in causing blindness in both eyes is glioma. That is another curious disease in which family tendency is noted. It often occurs in two or three members of the same family and frequently effects both eyes. It is seen in children under three or four years old—rarely later. Fortunately the disease is usually fatal, but early enucleation may preserve life. I have removed both eyes of a baby who is the third member in the family to have glioma. That child, I am glad to say, died from extension to the brain a few months after the operation.

As to the wearing of glasses: Gifford, of Omaha, Nebraska, made the suggestion not long ago that many people would be protected in their occupations by simply wearing plain glass goggles and urgd the adoption of that plan. I was interested in Dr. Lederman's statement that of two hundred and ninety-seven cases where glasses were broken not a single serious injury to the eye occurred. I have seen two cases in which the eye was injured by glasses being broken acidentally. A little girl while walking on the street was hit by a rock thrown by one boy at another. Her glasses were broken and a small triangular piece of glass was driven into the ciliary body. She was sent to me as soon as possible after the accident; the piece of glass was removed and she aferward had good vision. The other patient was a woman whose eye was injured by a blow. She was wearing glasses at the time. A piece of glass was driven into the eye and she lost her eye. These are the only two cases I have seen of the kind. They are very rare so I believed glasses are a real protection in the vast majority of cases. The chances of a piece of glass being driven into the eye are remote.

As to the question of enucleation: No doubt all of us have removed eyes which might have been left, but, gentlemen, that is the most conservative thing to do. A blind eye that carries any danger to its fellow is generally best removed.

While it may be true that some eyes have been enucleated that might have been left without danger, it is the safest plan to remove the useless eye that carries any danger.

In regard to phlyctenular ophthalmia: I remember hearing the late Dr. J. M. Ray ask the question many years ago before a local medical society: "Did you ever notice that phlyctenular ophthalmia was always much more severe in the negro race than in the white?" I believe this is true—negroes suffer more severely from this disease. It is ordinarily a very trivial affection. The term itself is a misnomer. The name phlyctenular is from the Greek phleukten, which means a blister or vesicle. It was thought the minute elevations on the eyeball, about one-fifth the size of a grain of wheat, were blisters, hence they were named phlyctenules. They are very common and pathologically are small collections of leucocytes which merely elevate the mucous membrane. Other names have been suggested, such as strumous ophthalmia, scrofulous ophthalmia, etc., and the tendency today is to consider the disease a localized tuberculosis. I do not believe the latter theory has been proven. Verhoeff, of Boston, regards the condition as tubercular, and a great many other men look upon it as localized tuberculosis. However that may be, we find the disease develops in two forms, one affecting the conjunctiva and never serious, the other affecting the cornea, sometimes attended with considerable danger of leaving corneal opacities or even perforation.

Gavin Fulton: In regard to the instillation of silver nitrate solution into the eyes of the newborn: I use a one per cent solution. I have never used the drug in two per cent solution for this purpose, as it is no more effective than one per cent and may cause considerable irritation. I believe one per cent solution of silver nitrate is a more positive safeguard than argyrol, and for that reason I have never used the latter preparation.

Ben Carlos Frazier: I have seen several cases where one per cent solution of silver nitrate caused severe irritation of the eyes, and even the pathologist was in doubt about the diagnosis. A prominent ophthalmologist saw one of the babies and believed the trouble was due to gonorrhea. The eyes were inflamed for about a month and I am sure the trouble was due to one per cent solution of silver nitrate. I have had two or three such cases. One of the cases was reported in detail some years ago. In that case I used two per cent solution of silver nitrate, the baby had very sore eyes and was treated by an ophthalmologist for several weeks.

Wm. J. Young: My interest in the subject of blindness centers about its prevention. Some of the most important work we are doing in the arsphenamin clinic at the Louisville City Hospital is in cases where vision is defective from syphilis, such as interstitial keratitis, iritis, etc. Even young children are put on the table and given arsphenamin treatment without making much fuss. It is astonishing the number of doses of arsphenamin sometimes required to favorably influence eye lesions due to syphilis. I recall a very intense case of iritis in a girl nine years of age. She had to be led into the room and she failed to show any appreciable improvement until after twelve doses of arsphenamin had been given. She then began to gradually improve and after twenty-one doses administered in twenty weks she had vision of 20-20.

About three years ago I made a rather interesting experiment at the hospital with twenty patients. They were all suffering from eye lesions due to syphilis. We used the regular course of treatment, that is, six doses of arsphenamin and fifteen doses of salicylate of mercury. We then took twenty other patients and gave them only arsphenamin, omitting the mercury. The results showed that arsphenamin had more effect on deep lesions of the eye due to syphillis than any other drug, therefore we adopted the plan of using only arsphenamin in the treatment of ocular syphilis. In those cases in which we continued arsphenamin without mercury the eyes showed progressive improvement. In the other group of cases where mercury was used after six doses of arsphenamin the improvement at first noted was not maintained, that is, the patients complained they could not see as well as they did while arsphenamin was being administered.

I believe arsphenamin is the drug that should be used in the treatment of ocular syphilis.

C. Skinner: As to the use of nitrate of silver in the eyes of the newborn: I have had one or two cases of severe conjunctivitis after the installation of nitrate of silver, at least no other cause could be assigned. I have not used this drug for a number of years, but have used argyrol altogether with uniformly good results.

In regard to the wearing of glasses for protection of the eye from accidental injury: I am aware of one instance in which the wearing of glasses prevented what might have been a serious injury to the eye. While trying to repair an electric light fixture an explosion occurred and a piece of hot metal from the bulb struck the patient's lens and remained there. It had to be scraped off with the blade of a knife. If glasses had not been worn at the time a serious injury might have been inflicted.

I. A. Lederman (closing): I wish to thank the gentlemen for their discussion: I purposely omitted details as to the technique of examination, diagnosis, etc., as it would have made the paper entirely too long. You will have to accept my word for the diagnosis which had to be made largely upon the physical findings alone.

As to the point made by Dr. Dabney in regard to retinitis pigmentosa: I never saw a case of blindness in a child from this cause until I took charge of the children in the institution which I mentioned. As I understand it, blindness does not come from the pigment deposited, but from atrophy of the optic nerve which with contraction of the visual field always follows. I have seen patients with retinitis pigmentosa who are middle-aged now and still have their vision. These cases were carefully studied and I could not come to any other conclusion than that they have retinitis pigmentosa. They have the characteristic deposit and arrangement of the pigment. My diagnosis was based upon the ophthalmoscopic picture only. If Dr. Dabney is willing I shall be glad to take him to see the children I have mentioned and have him determine whether I have made a false diagnosis.

Another point made by Dr. Dabney is exceedingly well taken: I criticised the statement which I quoted, to the effect that all cases of congenital and hereditary blindness are due to syphilis. I do not believe it. There are certain congenital defects that are developmental in character and I am sure have nothing to do with any disease. They are marks or stigmata of degeneration which have nothing to do with disease so far as I know. Hereditary defects are probably in a great majority of instances due to syphilis occurring at some time in the previous history of the family.

As to the use of silver nitrate, the Crede method of preventing ophthalmia in the newborn: I thoroughly agree that one per cent solution of silver is sufficient. I do not believe that any of the other silver salts are as effective as the nitrate though I have seen some cases where irritation of the eye could be attributed to the use of nitrate of silver. I have seen one case of ulcer of the cornea following the use of two per cent silver nitrate solution. The case progressed to permanent opacity of the cornea, but whether this was entirely attributable to the use of strong silver solution I do not know.

With reference to phlyctenular keratitis: In private practice I have seen several cases of complete blindness from phlyctenular keratitis. The children referred to in my paper had received no medical attention whatever, they were sent to the institution because they were blind and could not attend school for that reason. As to the primary cause of phlyctenular keratitis in these cases I have absolutely no idea. In the cases I have reported the cornea is completely covered with a thickened mass that we recognize as the result of phlyctenular desposits.

In regard to interstitial keratitis: I have in mind one child who has been blind from this cause for six months. I mean by this that the child has not been able to see or read, he has not been able to open his eyes on account of the intense photophobia. Under treatment there has only recently been some improvement and the child will undoubtedly later have useful vision. An interesting point in this case is: after the father sent the child to me I asked the family physician to have a Wassermann test made to determine whether the child had syphilis. He assured me that there was no possibility of syphilis. I let the matter rest for a few days and then insisted upon a Wassermann being made. We found that the child showed a four-plus Wassermann with absolutely negative family history. This was the only child. The father and mother were both subjected to the Wassermann test; the mother's blood showed plus-two. I think that is a rather common experience.

With reference to one point made by Dr. Young: I have been very much disappointed from the use of arsphenamin in interstitial keratitis. There have been a few brilliant results from this method of treatment. In my opinion the old-fashioned treatment with mercury and iodide of potassium in progressively increasing doses will be found more effective in this particular disease. At least in my experience uniformly good results have not been secured from the use of arsphenamin.

There is another point I desire to make: My paper referred to blindness in both eyes. Of course, we know there are many people who are blind in one eye and go about their business just the same. The statistics quoted and the remarks I made in the paper had reference to complete blindness in both eyes. Blindness, so far as a child is concerned, will prevent him from getting an education; and so far as an adult is concerned, will prevent him from earning a livelihood.

One other point made by Dr. Young: He mentioned iritis: I said nothing about iritis in my paper because that does not give rise to blindness unless complicated.

AN INTERESTING X-RAY STUDY OF A FOREIGN BODY—HONEY LOCUST SEED IN THE RIGHT BRONCHUS.*

By C. E. Purcell, Paducah

On the 15th of October, 1921, through the kindness of Dr. Cohn, of Fulton, Ky., I saw a child twenty-four months old. The history of the case is as follows:

During the afternoon of the 15th, the child, while playing with two honey locust seeds, "swallowed one," as the parents stated. The child was seized with a violent fit of coughing which lasted for several hours. It was hurriedly taken to Dr. Cohn and he telephoned me at once to be ready to do a bronchoscopy on arrival of the child. Fortunately for us, the parents had kept the companion seed, and it appeared so dense that it occurred to us that possibly it might show in an x-ray picture. Accordingly, our first step was to secure an x-ray picture. This picture was absolutely negative so far as any location of a foreign body. We then decided to put the companion seed, which the parents brought along, on an x-ray plate and to determine if this would show a shadow in the picture. This gave us a good picture of the seed. We then decided to take another x-ray picture, placing the companion seed on the plate and so place the child that the ribs would extend over this. We also placed on the plate a pair of hemostats in order to mark the seed. This picture showed the companion seed very plainly at the end of the hemostat. The x-ray picture, which I herewith present, shows the seed very plainly through the rib and marked the hemostat. It occurred to us at this time that possibly there was no foreign body in the lung since we felt that since the companion seed showed very plainly through the ribs, the one in the lung, if it were present, should also show in the x-ray plate. Furthermore, by this time the symptoms which the child had on first aspirating the seed had cleared up. Dr. E. W. Jackson, who made the x-ray plates, went over the lungs carefully with us and there were absolutely no physical signs of any obstruction in the lungs. There was no difficulty in breathing and there were no other symptoms that would suggest the presence of a foreign body in the lung. The parents insisted that they knew the child had "swallowed," as they called it, the seed. It was thought from the study of the x-ray pictures and in the absence of any physical signs, that if the foreign body was present anywhere it must be in the larynx. So, therefore, it was decided to do only a direct laryngoscopy and in the event of the seed being in the larynx we were prepared to remove it. This examination eliminated the larynx as being the location of the foreign body. It did, however, established a factor in the case that we could account for, namely, a severe laryngitis. Dr. Cohn had made no effort whatever to look into the larynx, nor did he do the usual unwise thing by attempting to put his finger into the throat for exploratory purposes. He made no attempt whatever to locate the foreign body.

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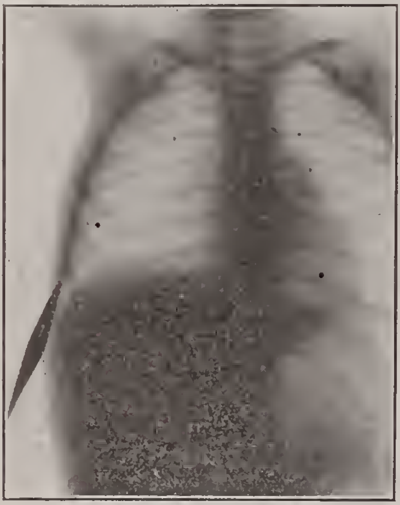
*Read before the McCracken County Medical Society.

As the child had not been previously sick it was a mystery then why the child had this extensive laryngitis, and which still remains a mystery to the writer why the laryngitis was present.



X-ray showing companion seed placed on x-ray plate and marked by hemostat. The companion seed shows through the cartilages of the chest very distinctly.

We decided to keep the baby in the hospital for further observation. It passed a very good night without any difficulty in breathing and with practically no coughing. Next morning the child was bright and perfectly well with normal temperature and normal respirations. We again went over the child to see, if possible, if we could find any physical signs of the foreign body. All the while the parents insisted that they knew the child had "swallowed" the seed and insisted on our doing something. Again we postponed bronchoscopy for the reasons heretofore mentioned. By noon of the following day it was observed that the child had some difficulty in breathing when it played or when it took a walk around the square. It also became irritable and the mother could not amuse it for any length of time with any degree of success. By this time there was a slight elevation of temperature and we felt that the larynx could be the cause of this. These symptoms continued for two hours, and, as we could not reconcile the family to wait further, we decided to do an exploratory bronchoscopy. We explained to the parents that we were ready to do the bronchoscopy at any time, but we did not feel in view of the symptoms and in view of the lack of x-ray evidence that we were fully justifiable in this procedure. The parents, however, were insistent and at 3 o'clock we did a bronchoscopy. Having observed the night before in examining the larynx that there was an extensive laryngitis, and in considering the age of the child, namely, twenty-four months, it was thought best to give the child a general anesthetic in order to reduce to the minimum all possibilities of trauma in passing the bronchoscope through the glottis. We also took the further precaution of shrinking the laryngeal tissues with adrenelin chloride in order further to reduce injury to the already highly inflamed structure. I had no difficulty whatever in passing the bronchoscope and I used most of my time in gradually passing the tube through the cords and used the respiratory movements in order to facilitate introduction of the bronchoscope. As soon as the glottis was passed, I rapidly passed the bronchoscope down the windpipe, and, as there was no foreign body present there, I looked into the right bronchus, the usual place for lodgement of foreign bodies. My first glance into the right bronchus revealed the presence of the seed. It was at once seized with forceps and removed without any difficulty. It only required a few seconds to get the seed out after it was located. The child was put to bed and passed the night without any inconven-

Photograph of a honey locust seed after removal from right bronchus of child twenty-four months old.

ience whatever. Next day the child left for home. We have heard through Dr. Cohn that the child got well and remains well. The lessons to be learned from this case are as follows:

First, that a foreign body can be in the air passages without any symptoms—especially early symptoms—during the first twelve hours.

Second, that with a history of a foreign body, we are justified in doing exploratory bronchoscopy. It can do no harm if properly done.

Third, that we were justified in giving a general anesthetic in order to keep the child absolutely still and to relax the laryngeal structures to the utmost.

And, finally, the wisdom of Dr. Cohn in making no attempt whatsoever to locate the foreign body since he was not going to attempt bronchoscopy.

DISCUSSION:

Vernon Blythe: The paper and report of the case of the extraction of foreign body from the bronchi by Dr. Purcell has been of unusual interest. This is a field of work in which few are adept. Many of us have had little or no experience in an effort to use the bronchoscope. It is a very distressing and heart rending incident in the life of a mother or father when they find one of their little ones is likely to die from suffocation or from an injured lung due to the presence, by inhalation, of a foreign body, such as a grain of corn, bean or some other substance.

Quick and efficient expert relief is the greatest desire of parents. The report of cases which Dr. Purcell gives us has demonstrated that he has acquired great efficiency and skill in this line of work. In recent years while in one of the great Chicago hospitals I saw one of the prominent Chicago specialists make an ineffectual effort with the bronchoscope to extract from the right bronchus a bean which a small child of seven or eight years of age had supposed to have inhaled. After considerable time they decided to delay the operation. I had no opportunity to follow up this particular instance, but from the condition of the patient at the end I judged that he was very serious.

In this work, as in all work, skill must come by experience and from other cases which I have heard of Dr. Purcell having had, I think he has acquired the necessary adeptness and experience in the use of the bronchoscope to have gained the confidence of the medical profession when they happen to have one of these difficult cases to contend with, and which is also holding out great comfort to the suffering.

E. W. Jackson: I saw this patient with Dr. Purcell and Dr. Cohn and made several x-ray picture in an effort to locate the bean, but failed to show it. I could lay a similar bean on a film and get a shadow without any trouble, but I could not show the one in the bronchus, the density of the chest was so near that of the bean I could not get a contrast. I was not surprised at not being able to get a shadow of this bean as they are so soft it is very difficult to get a picture of them.

The most striking thing about this case to me was the almost entire lack of symptoms. The child experienced practically no difficulty in breathing, and we were unable to get an abnormal sound over the chest; in fact, everything was so decidedly negative that we doubted the presence of the foreign body, but the mother was so insistant that the child had the bean in the lung it was decided to do the bronchoscopy. This was accomplished without any difficulty and the bean was very readily removed from the right bronchus. It was a very interesting case, especially from the standpoint of symptoms, or rather lack of symptoms, and I am very glad to have had the pleasure of seeing it.

H. H. Duley: The case reported by Dr. C. E. Purcell was particularly interesting to me. In this case I gave the anesthetic and I have seen him do a number of other operations for the removal of foreign bodies from the bronchi and esophagus. Ordinarily he does these operations under local anesthetic, and very successfully. He removed the bean very quickly, succeeding in his first attempt. These are very difficult operations, and from what I can see from reports, there are a great many failures as well as deaths.

I congratulate Dr. Purcell on his rapidity and skillfulness in this case.

E. R. Goodloe: I feel sure that we all have enjoyed Dr. Purcell's paper very much. The subject of bronchoscopy is one that challenges the interest and best thoughts of every one who is practicing either medicine or surgery.

At present I have a patient, age nine years, suffering from bronchial asthma, due, I believe, to a foreign body remaining in the bronchus for a period of about six months, at which time a violent paroxysm of coughing expelled a peanut but left as a sequel a chronic bronchitis. This child's home at the time of her first symptoms was in Oklahoma. Her case was diagnosed pneumonia and she was taken to a hospital and observed and treated for about six weeks. The parents suggested at the time the probability of the peanut's lodgement in the bronchus, as she was eating peanuts when taken sick. The attending physician, however, did not place much credence on the probability of the peanuts being the cause of the whole trouble. This is a case in which bronchoscopy would have been of inestimable value.

Bronchoscopy is to me a most interesting subject for several reasons; first, comparatively speaking it occupies a virgin field. On a close investigation as to how many men in the United States are doing this kind of work, one is reminded that we find only two who at present are engaged to any marked degree in bronchoscopy. East of the Mississippi River we find Dr. Chevalier Jackson, of Philadelphia, doing the major portion of this work, and, while on my vacation through the West this summer, through California, Los Angeles, San Francisco, Portland and Seattle, on inquiry from the various specialists, I found that practically all cases of foreign body were referred to Dr. Lynch, of New Orleans.

Another reason why this subject is interesting to me is that recently my brother, Dr. A. E. Goodloe, of Chattanooga, Tenn., has perfected a bronchoscope which, from reports of several prominent men, bids fair to render this dangerous operation more simple.

May I add that we should congratulate ourselves on the fact that we have here in Paducah Dr. Purcell, who has spared no expense in time or money to equip himself for these emergencies in which life and death is the issue.

We wish to congratulate Dr. Purcell on his most excellent record of 100% success for the year 1921.

C. E. Purcell (closing): This discussion shows that endoscopy—that is, tube work—is being appreciated by all physicians and surgeons. It would seem that all doctors should have read of the perfection in the handling of the tube in the extraction of foreign bodies and in diagnosis, yet I frequently hear of one who has not heard of it.

Dr. Blythe's report of a case he observed is common. He has the correct idea of the importance of careful work. Dr. Goodloe has advanced some splendid ideas. I think enough of his brother's instrument that I have it in my set.

Tube work, if successful, must be done without trauma. It is a clever trick to handle a tube without adding another injury to your patient.

Bacterial Parasites of Human Mucous Membranes.—In an examination of the flora of human mucous membranes, Oliver and Wherry isolated Bacterium melaninogenicum (N. Sp.) from the throat, tonsils, infected surgical wound of the abdomen, from urine collected as aseptically as possible from suspected focal infection of the kidney, and from the feces of a case of chronic dysentery superimposed on an original amebic infection; B. duplex-nonliquefaciens, in bronchial sputum; M. minutissimus (N. Sp.) from the mixed flora in the aphthous ulcers of the gingival and buccal mucosa of a case of post-poliomyelitic paralysis; M. reniformis (Diplococcus reniformis, Cottet, 1900) was isolated from the vaginal pus in a case of vulvovaginitis in a child.

OBSERVATIONS ON INTENSIVE X-RAY THERAPY.*

By William J. Young, Louisville.

With the recent advance toward perfection in the manufacture of high voltage x-ray machines and x-ray tubes, a new area in the treatment of malignancy is gradually becoming accepted and stabilized. The main features of this newer form of therapy are:

(1) The further filtering out of the less penetrating rays:

(2) The estimation of the dose of ray discharge through the skin into the malignancy.

(3) The striving with one treatment to obtain lethal radiation to the malignancy.

We have, until within the last six months, been treating malignancy with x-ray machines capable of producing 135 K. V. with three to eight millimeters of aluminum for filtration.

Following the practice of the German manufacturers, practically all the x-ray factories in the United States are now producing machines of high voltage equal to those made in Germany. The x-ray tubes necessary to discharge the rays from this high voltage are especially designed for therapy only. The most generally accepted substances for filtration are: one millimeter of copper and one millimeter of aluminum. The aluminum filter is added to absorb the secondary rays caused by the bombardment of the x-rays upon the copper filter.

High voltage transformer with overhead system. (Author's equipment.)

By filtering out the different long wave lengths of x-ray with copper there is produced short wave lengths of homogeneous radiation which do not materially change in intensity or quality when penetrating into deeper parts. It has also been found by treating with large portals of entry that a higher percentage of rays pass through the skin and reach their objective point with fuller force than when a number of smaller fields are used. Several methods have been devised to determine the amount of radiation, and numerous instruments have been devised to determine the intensity of the radiation, the proper filter for the radiation, also the time of application of the rays.

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*Read before the Louisville Medico-Chirurgical Society.

Showing the position of patient being treated by concealed x-ray tube, the treatment being given to the back. This manner of concealing the x-ray tube leaves the patient nothing to fear and they often go to sleep during treatment.

In the treatment by higher voltage the physicist will play a large part in determining the factors so as to obtain the best advantage from the newer form of radiation. It will be necessary for him to standardize the limits to which this form of radiation may be therapeutically employed. The judgment of the amount of treatment which may be given will depend largely upon the judgment of the one who is to administer it. The one point upon which practically all the schools of high voltage therapy agree is: the shorter the time consumed in delivering the radiation, the better the ultimate results. If the patient's general condition will warrant the entire dose of ray being given in one treatment, the better the chance of cure to that individual.

In the application of the x-ray radiation the susceptibility of the patient to nausea is to be borne in mind, as well as the change in the blood. Nausea may be very intense and persist for five or seven days in some patients. The red cells are lowered by the treatment as well as the white cells. It is some times necessary to resort to blood transfusion in extremely debilitated patients. The blood cells gradually returns to the original quality. As the patient improves the red blood cells and the lymphocytes become more numerous.

To Professor Dessauer, of Frankfort University, the credit of this advance in x-ray therapy is mainly due. He and his associates have prepared charts showing the distribution, intensity, penetration and quantity of homogenous radiation physically. It remains for the therapeutist to develop this knowledge and the findings of other noted men to their full value clinically. That it is an advance in x-ray radiation seems to be unquestionable; that it should prove a helping factor in our present methods of x-ray therapy seems certain. However, it is still just a conjecture what this improved x-ray radiation will accomplish.

The three important points, to my mind, which the high voltage presents are:

(1) The production of homogeneous rays.

(2) The estimation of the quality, intensity, penetrability, the proper filtration, and the time duration to obtain an erythema dose.

(3) The better chance to ultimately standardize the dosage of x-ray radiation in the treatment of malignancy.

Unless those working in this field utilize the factors established by the physicist a large amount of the good which might accrue will be wasted; or at least time lost in establishing these factors clinically. This newer plan tends to be more exacting than the older methods.

In the application of this newer therapy in the treatment of malignancy, the erythema dose is considered one hundred per cent of radiation, this being the largest quantity of rays the skin will safely tolerate. The object of attack by radiation is cross-firing in such manner as to produce a lethal dose of x-ray to malignancy beneath the skin. The skin and intervening tissues will filter out a certain percentage of the rays before they reach their objective point, but by using several portals of entry the lethal dose for the cancer cells may be administered.

The lethal dose for carcinoma, based on the erythema dose being 100% radiation, is given by the different clinics of Europe as between 110% and 90%; that for sarcoma between 70% and 50%. It has been further found that the lethal dose for tissues of the intestine is 135%, the muscles 180%, the bones many times that of the other tissues. We may see, therefore, these deductions being true, that the chances of injury to the structures adjacent to the cancer cells has a margin of safety.

CONCLUSIONS.

(1) That the modern x-ray radiation is a distinct advance in x-ray therapy.

(2) That standardization of the factors governing application of the rays is a necessity.

(2) That standardization of the factors governing application of the rays is a necessity.

Shows position of patient when it is advisable to treat the back and addomen at the same time. The x-ray tubes are housed one under the tables, the other in the cradle.

DISCUSSION:

B. W. Bayless: At present I have had no personal experience in the use of the high voltage x-ray machines described by Dr. Young, but we are installing one at the Norton Infirmary. However, I was recently in Battle Creek, where they are using this newer x-ray therapy rather extensively and was able to see some of their work. There only one patient can be treated at a time, but they keep the machine going twelve to fifteen hours each day. Of course, one tube will not stand that much exposure, but they overcome this by having a number of tubes which are changed from time to time and the machine is thus kept busy for at least twelve hours each day.

I found they were using this newer therapy in a great variety of cases, but particularly in malignancy of the breast and uterus. In some instances it is used prior to operative intervention, in others as a post-operative measure. Their plan is to give the maximum dose at one treatment. Sometimes the patient becomes greatly nauseated and the treatment has to be divided, extending over three or four days instead of giving the maximum dose in one exposure.

They have shortened the time of exposure very much recently by giving the x-ray through a special type of tube and reducing the distance. By the use of this method they have reduced the time of exposure from six to eight hours to four hours as the maximum. This makes it very much easier on the patients and many of them do not become nauseated to the extent they did with longer exposures. Just what causes the nausea no one seems to be able to determine.

In Battle Creek they have the standardized measuring devices, and use copper filters, aluminum, etc., as described by Dr. Young. The time of exposure varies from one to four hours, depending upon the location of the lesion being treated. The amount of filtration also depends upon the same factors. Lesions in the pelvis are treated both anteriorly and posteriorly; two lateral exposures are also made. They figure that in tumors of the mid-pelvis treated from front to back they are giving forty per cent of an erythema skin dose, and from side to side about twenty-five per cent because the distance is greater. They are using this form of treatment not only in cancer, but in fibroids, enlarged thyroids, and in all other lesions where they formerly used the smaller machines.

They are not claiming many cures at present but a great many improvements have been noted which they hope will continue. The Germans have been using these high voltage machines for five or six years, and claim eighty-five per cent of cures in the general run of malignancies. The Germans state they are not operating nearly so many patients for malignant disease as they did previously. If their percentage of cures are half the figure stated it must be admitted their results are still good.

With the newer therapy and the technique described by Dr. Young of cross-firing from front and back the time of treatment is very much shortened. Whether it will have any greater effect on the patient remains to be seen. The object is to give one maximum dose and shorten the time as much as possible. With two tubes, one in front and another in the back, it looks like much has been accomplished in the right direction, but the effect on the patient is something that will have to be carefully watched.

It certainly seems that this newer method of treatment is going to be a great help in the management of malignant diseases. If one uses 200,000 V. at 50 cm. skin distance, filtered through one millimeter of copper, the dose being given over an area 15 cm. square at depth of four inches, he is giving about fifty per cent of the effective rays at the objective point. Of course, the skin is getting a greater amount, and the further away from the skin the objective point is located the less the radiation, but the average individual is about eight inches antero-posteriorly, so the objective point is getting about fifty per cent of an erythema skin dose. By cross-firing from the back and two sides the dose is increased by about one-half, so by figuring the erythema skin dose as one hundred per cent the dose is increased to 130 or 150 without much trouble, thus giving the cancer cells the maximum dose without producing any irritation of the skin.

They have not been able to secure as good results in cancer of the stomach and intestines that they have in cancer of the uterus and breast by the use of this newer therapy, but improvement is shown. They are treating gastric cancer, however, and are following the patients with the view of determining the ultimate outcome in each case. Some operators have been alkalinizing the patient thoroughly before using the x-ray treatment and claim to have largely overcome the nausea by this plan. It is a strange fact that some patients become nauseated and others do not under identical circumstances.

L. Wallace Frank: I have been very much interested in this newer departure of Roentgen-ray therapy since the publication of several articles in the German literature about ten months ago in which the claim was made that a cure was obtained in about eighty-five per cent of malignancies. It is difficult for us to believe that such results are possible, at the same time these figures seem to be reliable and we must take them for what they are worth until we know from our own experience that they are correct or incorrect.

I do not believe the time has yet arrived when we should advocate the treatment of malignancy by means of the x-ray alone, it is rather an adjunct to surgery instead of a replacement, but if the condition can be made operable by the use of the x-ray it will result in much benefit to the patient. I do not believe x-ray therapy will ever replace surgery as the method of election in the treatment of malignancy, where the neoplasm is accessible to surgical attack.

A high voltage x-ray machine such as illustrated by the pictures Dr. Young has shown us has been installed at the Norton Infirmary and I expect to try it on a patient referred by Dr. C. G. Hoffman, a man with a large sarcoma of the prostate gland which has been treated by radium and also by Dr. Bayless with the Roentgen-ray, both posteriorly and anteriorly. The man is not well but the growth is much smaller and I am anxious to see what effect this newer x-ray therapy will have.

We have quite a number of patients with malignant disease we expect to treat as soon as this high voltage machine is ready. The result secured will be carefully watched and we hope some good will be accomplished.

We have one girl with mammary carcinoma which has progressed beyond the operative stage. We expect to use the high voltage machine in treating this patient. The surgical cures in mammary cancer do not average more than forty per cent, because when the patient reaches the surgeon there is usually metatastic involvement which often means that the case is out of the operative class. If this newer form of x-ray therapy can reduce or eliminate metastases, it will mean a great deal to this unfortunate class of patients, if the metastasis can be gotten rid of by the x-ray the primary growth may then be surgically removed with some prospect of ultimate cure.

What the effect of this newer form of x-ray therapy is going to be in uterine carcinoma it is impossible to say. At present we know that radium is giving excellent results. Whether the outcome with this newer x-ray therapy is going to be superior to the result secured by means of radium, time only can demonstrate. No definite opinion can be given until we have had greater experience than at present.

J. Garland Sherrill: We all greet with pleasure anything that will help us in solving the cancer problem, and we are hoping that the newer x-ray therapy will at least be an aid in that direction. I agree with the statement that we ought to be very careful in claiming cures of malignant disease. Three or five years even is certainly not a sufficient time limit for anyone to say that the patient is cured, because recurrence has happened as late as twelve or more years after supposed cure.

It seems to me that nausea and other discomforts patients have under small doses of x-ray will probably be increased when larger doses are given. Sometimes patients complain so much that they refuse further treatment; this has happened under the smaller dosage given previously. In some instances where induration has occurred around the operative wound, for instance, in mammary carcinoma, some months after operation, small doses of x-ray have seemed to cause absorption of the indurated tissues and the results have been rather gratifying. I believe, however, we ought to bear in mind that in some instances where the Roentgen-ray and radium have been employed and a cure was not effected, these agents caused aggravation of the malignant process and the disease progressed more rapidly to a fatal issue. We may say the same thing happens following surgery. Sometimes after surgical intervention which is unsuccessful the disease progresses more rapidly to a fatal termination.

There is sometimes a considerable amount of constitutional reaction following Roentgen-ray treatment: I have under observation one case of this kind. The woman developed hemiplegia following x-ray treatment of a cancerous mass in the upper thorax. I did not attach much importance to this, however, as the woman was in a serious physical condition and advanced in age. The hemiplegia may have merely been a coincidence. I have wondered whether the x-ray can produce sufficient change in the parts treated to make the development of such a condition likely. Cancer is most frequently seen in elderly people, and I think the point I have mentioned should be borne in mind.

The method of treatment outlined by Dr. Young represents something new in this part of the country. After the method has been given a fair trial for two or three years and the results carefully checked we will be in position to judge as to its effectiveness. Of course, we are hoping for favorable results. However, I have never yet seen any method which I thought would supplant surgery in the treatment of malignant disease. I have advised the use of radium in certain cases where surgery seemed hopeless, and have used both radium and the Roentgen-ray before surgical treatment was applied. I believe there should be greater co-operation between the surgeon and the radiotherapeutist in the handling of patients with malignant disease. A combination of the two methods will doubtless be very much more effective than either one alone.

It is doubtful in my mind whether blocking the lymphatic channels is really of any benefit. When the Roentgen-ray is used for this purpose it is a question whether infectious material may not be forced further into the tissues, i. e., if the x-ray causes disintegration of the glandular tissue as we have been told fragments may be carried by the circulation and thus disseminate the disease.

C. D. Enfield: I would like to call attention to just one point which may have been overlooked: The intensive x-ray therapy described by Dr. Young is new here, but it is at least seven years old in Germany, and the cures they are claiming in Germany are five-year-cures, just as we speak of five-year-cures from surgical treatment of malignancy in this country.

Furthermore, the ideal method of attack in order to be effective has been determined to be somewhat similar to Ehrlich's original idea in th use of salvarsan, namely, that the first dose must be effective in itself without the necessity of any further treatment. Consequently, cases which have had previous inefficient radiation by x-ray or radium do not constitute a fair trial for the method now advocated. Obviously many of the first cases to be treated in this country will be of this type, and the results are bound to be somewhat disappointing if this fact is not borne in mind.

Wm. J. Young (closing): So far as the actual results are concerned from the use of the high voltage x-ray machines, there are yet no statistics in this country so far as I am aware upon which a definite opinion can be based. The idea of this treatment is to give one dose, and only one, if possible, if the patient is in satisfactory physical condition, the maximum dose is administered in one day, or if this is not feasible treatment may be given every other day. Profound local and constitutional reactions are sometimes noted following massive doses of x-ray, such as marked anemia, sloughing of the mucosa in uterine cancer, irritable bladder, etc. In fact, the treatment of malignancy by these high voltage machines has reached the point where it is practically on a par with surgery; that is, we are taking chances with the life of the patient just the same as the surgeon does. The object in both methods of treatment, of course, is to eradicate the malignancy, and in either event the result may be successful or the patient's life may be sacrificed.

It has been remarked in the discussion that the surgeon is the logical man to treat cancer. I am willing to agree with this statement, but it must be remembered that radiation by means of either radium or the Roentgen-ray is classed as a surgical procedure. However, I cannot agree that it is fair for the surgeon to extirpate the primary tumor and then ask the radiotherapeutist to later treat the metastatic involvement, as the A, B, C of cancer surgery or of cancer radiation to my mind is to attack the metastasis first and the primary growth later.

So far as the statement is concerned as to eighty-five per cent of cures in malignancy: That is the record given in one clinic in Germany according to the literature, and if this is true they are certainly obtaining marvelous results. Of course, we all appreciate the fact that when a new procedure is advocated and adopted by different observers, especially if preliminary results from the procedure appear more favorable than have been secured by older methods, there is always a tendency for the pendulum to swing too far in the direction of the new procedure. Personally, I want to say, however, that if we can secure even twenty-five per cent of cures in malignancy by this newer method of therapy we are to be congratulated. The majority of cases we are getting today are inoperable when we first see the patients; that is, they have consulted the surgeon who has refused to operate, or operation has been performed with unsuccessful results. Consequently the most of the work we are doing is not with the hope of curing the cancer, but of prolonging life and making the patient more comfortable.

A closer understanding between surgeons and radiotherapeutists is necessary. If the surgeon would co-operate more with the radiotherapeutist I believe he would be able to do better work. If the surgeon would allow us to attempt to block the metastatic areas before he undertakes his operation I believe better results would be secured.

One of the main advantages this newer form of x-ray therapy offers is the high voltage which gives us a very intensive ray and at the same time produces a ray which is homeogenous. This is a ray which penetrates beyond the skin without spreading in various directions before reaching its objective point. In this way the tumor cells receive the largest dose which it is possible to administer without causing damage to the skin, the less penetrating rays being eliminated by the filtering process. Just what results we are going to obtain by this newer form of therapy is a question. I see no reason why we should accept the statistics of anybody; we should watch our patients carefully and after determining the end-results make our own statistics. At present I can see no reason to question the statement that this newer form of therapy is a great advance over former methods in vogue.

Some one asked the question whether this newer form of therapy is applicable to tonsil work, whether bacteria in the tonsil are destroyed, etc. It has been definitely shown by Witherbee, of the Rockefeller Institute, that radiation of the tonsil causes the disappearance of bacteria which are pathogenic to the mouth. For example, in a series of thirty cases he found streptococcus hemolyticus was present in twenty-nine. After the third small fractional dose of x-ray these hemolytic streptococci had disappeared. Witherbee has reported about six hundred cases in which radiation of the tonsils was done during the last four years and states that infections have promptly subsided following this treatment. He has reported good results even where the patient had so-called rheumatism presumably from focal infection in the tonsils. He is very enthusiastic on this subject.

The technic adopted by Witherbee calls for 10 inch distance, 7 inch spark gap, 3 millimeter of alluminn filter; so one can see the smaller x-ray machine will accomplish shrinkage of the tonsils. The principle on which x-ray of the tonsil is founded is the susceptibility of the lymphoid tissue to radiation. Personally, I have not seen a case fail to respond to the x-ray where the treatment was completed.

Chronic Nephritis With Bence-Jones Proteinuria.—A case of Bence-Jones proteinuria is reported by Walters in which there was definite evidence of progressive renal insufficiency denoted by extremely low excretions of phenolsulphonephthalein and the retention of large amounts of uric acid urea, nonprotein nitrogen and creatinin in the blood. The effect was studied of radium exposure over two inguinal masses which may have been the primary causative factor in the production of the Bence-Jones proteinuria.

EMERGENCIES AND COMPLICATIONS IN OBSTETRICS: CASE REPORTS.*

By HENRY M. RUBEL, Louisville.

Case I.—Injury to the cranial bones. Mrs. L., aged thirty-nine years, viii-para, admitted to the hospital April 3, 1921, having uterine contractions every seven minutes and lasting thirty to forty seconds. Vaginal examination: servix dilated three and a half fingers; membranes intact; cervix soft and thinning normally. That evening a hypodermic injection; cervix dilated three and a half fingers; ministered and she enjoyed some sleep during the night.

At six o'clock the following morning examination revealed a fully dilated cervix, vertex presentation in a transverse position, with the head about one finger length away from the vulva. I tried to rotate the head, but could not maintain it in proper position after withdrawing the hand. At ten o'clock A.M. I decided to apply forceps and after having the patient etherized a median forceps application was made after having tried to again rotate the head while the patient was anesthetized. The head rotated slightly but the forceps application was not ideal, and after rotation and traction had been tried the forceps were removed and reapplied. In about fifteen minutes the head was brought downward to the vulvar outlet, the forceps were removed, and the head delivered in the usual manner.

The child weighed about eight pounds with rather large head and shoulders. After delivery had been completed I was most surprised and chagrined to find a deep depression over the left fronto-parietal area, as though I had taken my thumbs and deliberately indented the skull in that region. Of course, I immediately ascribed this condition to a faulty forceps application, with a possibility of the forceps blades having slipped, and the greater part of the forceps pressure having been expended upon this involved area.

My first impulse was to operate upon the child and see if this indentation could not be raised, but upon thinking it over I decided to wait until the following day and see if the lesion would not rectify itself spontaneously, if not completely, in part. The child, aside from this condition, was in excellent shape.

The following day the depression was about the same as at delivery with some swelling of the scalp about the depression. The baby nursed and slept well and was otherwise perfectly normal. This depression worried me considerably, so much so that I asked Dr. Lee Kahn to see the patient with me. The result was that Dr. Kahn dissuaded me from any operative attempt whatsoever, for which I am most grateful, because after months had elapsed gradual improvement was noted.

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*Read before the Jefferson County Medical Society.

The usual causes for this condition are some disproportion between the fetal cranium and the maternal pelvis, when the latter is contracted, the impression being made by the sacral promontory, for example, or the forceps, etc. These impressions are chiefly encountered in children born alive and the latter generally survive. The prognosis is usually good, the lesion rectifying itself wholly or in part; and if the impression persists throughout life it has seldom been known to give rise to any intracranial trauma.

Treatment: If there is any paralysis the indication is to trephine; otherwise let the patient alone, as the chances are the results will be better without any operative intervention.

One other factor which may cause similar indentations is a condition known as "synclitism," the position of the fetal head when the planes are parallel with those of the pelvis. For example, when the sagittal suture lies about midway between the promontory and the pubis, perhaps a little nearer the pubis if the promontory juts sharply forward. The head is then said to be synclitic or in synclitism (DeLee). Marked asynclitism is pathologic.

Case II.—Post-Partum Hemorrhage: Mrs. S., aged 36, sexipara, of average height but overweight, weighing probably about one hundred and seventy pounds. All pelvic measurements were normal. She had a very large and pendulous abdomen with a marked umbilical hernia present.

After examining her and taking the history she casually remarked that she had always bled following delivery of the afterbirth, and that I should not become alarmed if it should so happen again. The patient was admitted to the hospital in the morning with pains about every eight minutes and lasting thirty to fifty seconds. Rectal examination showed the cervix dilating normally.

A peculiar feature about her pains was that every time she would have a strong uterine contraction her abdominal muscles would so act as to throw her uterus forward so she would not receive the benefit of this uterine contraction in the direction in which most good would accure. At each contraction the umbilical hernia would become most marked, and a mass of intestine would fill the pocket, which was about a child's fist in size. To overcome this faulty condition a large sheet was securely fastened about the abdomen, a large abdominal binder affair, so that the contractions would be directed along the proper axis of the pelvis.

As the labor progressed, and being mindful of her warning of bleeding, though I can truthfully state that I did not stress this part of her history very much, I took just a little more precaution than I usually do, and had the saline infusion set ready, hot saline in abundance for intrautrine douche, ergot, pituitrin, etc. Late that afternoon she was delivered of a male child weighing eight and a half pounds after a most normal delivery in L. O. A. position. Bleeding until that time was moderate. The placenta was delivered within twenty minutes, no traction on the cord being made, and the uterus being firmly held. No pituitrin had been used. Aseptic ergot (1 c.c) given intra-muscularly. Placenta delivered intact; uterus large and boggy; bleeding moderate but constant; no lacerations noted. Bleeding now increasing; uterus massaged briskly but no sustained contraction obtained; uterus explored with the hand to ascertain if a piece of placenta had been retained or if a clot had become lodged in the uterine cavity. No tear of the clitoris or any varices of the vagina found. Another ampoule of ergot given. Bleeding continuous and the patient exhibited characteristic symptoms, such as faintness, air-hunger, restlessness, thirst, smothering, fear of dissolution, pallid face, lips bluish white, pulse small and rapid, respirations rapid and shallow, nose and forehead cold.

The following methods were resorted to before the hemorrhage was safely controlled: First, combined uterine massage with occasional compression of the aorta firmly against the spine: Second, ergot and pituitrin. Third, hot uterine douches, one-half per cent lysol or normal saline solution being used, care being taken that all air was evacuated from douche point before using. Fourth, uterine tamponade. A firm uterine tampon was introduced and to make for greater security I inserted a suture through anterior and posterior lips of the cervix, on either side of the middle line, to hold the tampon in as safe and secure position as possible. The vagina was also firmly tamponed.

The gauze packing was removed in twenty-four to thirty-six hours cautiously. Just before removing the packing 1 c.c. of aspetic ergot was given. Of course, saline transfusion was practiced during the course of the initial hemorrhage, and later rectal saline by the drop method, as well as glucose solution and occasional inhalations of oxygen. The usual treatment for shock was employed.

The patient made an uneventful recovery, and the last time I heard from her she was again pregnant and nearly due to be confined "once again." Needless to say she has engaged another accoucheur this time.

Case III.—Acute Total Inversion of Uterus. Mrs. L., aged 23, a II-para, and of slight build, was admitted to the hospital December 6, 1921, at 3:30 P.M., pains occurring every two to three minutes and lasting about one minute. Rectal examination revealed a completely dilated cervix. The patient was taken to the delivery room and prepared.

Vaginal examination half an hour later showed that not much progress had been made; the membranes were intact and pains sluggish. Pituitrin, minims, V., given and in about fifteen minutes the pains became stronger and more frequent. The membranes ruptured and the head gradually presented at the perineum.

Forty-five minutes later pituitrin, minims III, was administered as the pains were losing their expulsive force and the patient becoming rather fatigued, as her first pains had started at about five o'clock in the morning. After waiting about an hour I decided upon a low forceps operation, as the patient could not force the head over the perineum.

Accordingly, forceps were applied, and a very easy delivery accomplished under ether anesthesia. Labor normal; presentation R. O. A.; weight of child seven pounds. The uterus seemed to be contracting normally and little blood had been lost thus far.

After a twenty minute wait Crede's method of expression was tried and slight traction made on the umbilical cord with gentle rotary uterine massage, but no results. In about ten minutes the uterus was again gently massaged and pressure over the fundus proved that the placenta was at the introitus. At this juncture the nurse who was holding the fundus said it had "slipped away from her and she could not locate it." In this case the fundus suddenly descended into the vagina. Naturally the nurse assisting me remarked that "she had never seen such a large placenta."

The anesthesia at this stage was energetically pushed as I wanted the patient well relaxed before trying manual reduction of the uterus. Fortunately there was exceptionally little bleeding at this stage, which was of immense help to me, and shock was not evident, these two factors alone being of such momentous importance. The placenta and uterus, which were now completely extruded from the vagina, reminded me of a large hour-glass arrangement. The diagnosis was self-evident. It was very easy to feel the inversion tract from the abdomen.

The placenta was removed cleanly before reposition was attempted. The uterus was wrapped in a sterile lysol towel until clean sheets and towels could be readjusted before attempting replacement. The right hand, or outside hand, was placed over the abdomen dilating the funnel or cup; the left hand grasped the entire mass and the palm assisted in pushing upward on the inverted fundus. This is not an easy task by any means, and it was only after three attempts had been made, well forward and in the direction of the axis of the pelvis, that the uterus began to infold and the cup above to gradually diminish until reposition was complete.

Ergot, 1 c.c., and pituitrin, ½ c.c., were now injected and the vagina moderately packed with guaze. There was no shock whatsoever and the patient made an uneventful recovery, though the following forty-eight hours were not very restful ones for me.

Total uterine inversion is a very rare condition, and one may be a score of years in practice before encountering such a complication. I sincerely hope so at any rate.

Statistics of the Dublin Maternity Hospital show that total inversion occurs once in one hundred and ninety thousand deliveries. Brawn places the frequency at one in two hundred and fifty thousand.

EMERGENCIES AND COMPLICATIONS IN OBSTETRICS: CASE REPORTS.*

By C. W. KARRAKER, Louisville.

Case I.—Twins, Cesarean Section, Second Pregnancy, Uterine Rupture: Mrs. S., aged 21, was referred to me March 24, 1920. She had been brought to Louisville from Oldham County, Kentucky, after having been in labor for twenty-four hours. External examination revealed the outlines of twins, but only one heart beat could be distinguished. On vaginal examination one fetus was found in transverse position, while one foot of the other was protruding through the cervix and its buttocks pressing against the abdomen of the first. The membranes had ruptured early so there was complete absence of amniotic fluid. The temperature of the patient was 101° F., pulse 120, respirations 36.

As she was a primipara we decided upon an immediate Cesarean section. At the operation one child was found dead, as had been expected from first examination. The second child is living and normal. The mother developed double pneumonia from exposure and was critically ill for some time, but finally recovered and was dismissed from the hospital in about four weeks.

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*Read before the Jefferson County Medical Society.

Both the patient and her husband were warned of the dangers of another pregnancy under two years, but fifteen months later she returned practically at full term in her second utero-gestation. She was sent to a hospital where she could be under constant observation of her local physician. She had been there only a few days when I was notified that she was in labor. Before I could reach the hospital, and after only a very few pains, the uterus ruptured. I found her in extreme shock, pulseless, with evidence of air-hunger and begging for water.

Operation was performed immediately, the fetus being found dead in the abdominal cavity. The placenta had blocked the rupture, which was through the former incision. The abdominal cavity was filled with blood, and despite the critical condition of the patient, the Fallopian tubes were removed. Half a gallon of normal saline solution was introduced into the cavity as even the intestines were cold. After three days the radial pulse could be counted and the patient made an uneventful recovery.

Case II.—Knot in Umbilical Cord Causing Death of Fetus: During the last year I have been unfortunate enough to have had three deliveries where there were knots in the umbilical cord. In two of the cases the cord was not constricted sufficiently to interfere with the fetus, but the one which I exhibit tonight was so tightly drawn that the baby died three days later, evidently from prenatal lack of nourishment.

Case III.—Extraordinary Prolificity: A woman who had married at the age of nineteen is now twenty-six. In November, 1915, she was delivered of one boy. In May, 1917, twin boys, and in April, 1919, again twin boys. Three months before the birth of these latter infants she had a severe attack of influenza. At the time of delivery she had a serious post-partum hemorrhage. This complication, by the way, has been noted in every pregnant woman I have seen who survived influenza.

This patient had a temperature ranging from 100° to 105° F. within a few hours after delivery. There was great distension of the abdomen, and a large quantity of mucus was passed from the rectum. She had a severe colitis which persisted (at intervals) for several months. This complication, I am sure, was caused by the effects of the attack of influenza.

In February, 1921, this patient was delivered of twin girls, at which time she had a normal delivery and recovery. Although she was unable to nurse any of these seven babies, they are all healthy, unusually attractive and normal children in every way.

It may be interesting to note that there was a history of twins in several members of the family on both sides.

DISCUSSION:

Edward Speidel: Doctors Rubel and Karraker have reported quite an interesting series of obstetrical cases. I have a photograph of a child with depression of the left frontal bone similar to the one reported by Dr. Rubel, and I may say that I had much less trouble with the case than he did because a sister of the patient was the trained nurse who assisted me in a forceps operation which I performed. It was a consultation case and I was much delighted when the baby was born to see that my forceps were correctly placed on the head and did not touch the depressed portion. The depression of the skull in this case was evidently due to pressure of the promontory of sacrum during descent of the child. The child lived and today, six years later, she has very little evidence of the former depression. We did nothing but let the child alone. I am of the opinion, therefore, where the child shows no symptoms of paralysis the conservative treatment would be the proper plan. Operative methods should not be considered in the absence of indicative symptoms.

In the second case reported Dr. Rubel (post-partum hemorrhage) I believe I would have resorted to packing at once. In a multipara with a relaxed abdomen it is perfectly easy to bring the cervix downward to the vulvar opening and introduce packing with little or no instrumentation.

The two most important features in reposition of a completely inverted uterus are: (1) complete surgical anesthesia, and (2) steady pressure on the uterus in the axis of the superior strait. I would like to suggest that the Trendelenberg posture is exceedingly helpful in the treatment of cases of this kind. I have only had one case of this character and I believe the Trendelenberg position was of considerable advantage in reposition of the uterus.

We had in the Louisville City Hospital a few weeks ago a case like the second one reported by Dr. Karraker. There was a tightly drawn knot in the umiblical cord and the child was born asphyxiated.

During the epidemic of influenza in the autumn of 1918 I was called in consultation to see a woman who was supposed to have puerperal infection. In that case I made the diagnosis of influenza contracted through infection carried into the vagina by the attending physician. The patient showed all the characteristic symptoms, and it was my opinion the contagion was carried into the vagina in the manner stated.

H. A. Davidson: In the case of post-partum hemorrhage reported by Dr. Rubel he was forewarned and, of course, was forearmed, but I think if I had a case similar to that in addition to what he did I would have given pituitrin immediately after the baby was born so as to make the uterus contract immediately, because we know that ergot will not act immediately, and I would have injected ergot at the same time. In addition to these measures I would have injected 1 c.c. of hemoplastic serum, because from the history no doubt the patient had some trouble with coagulation of the blood.

I would like to ask Dr. Karraker in the case of rupture of the uterus following Cesarean section, what kind of closure was made of the uterine wound. How many layers of sutures were inserted at the time of the operation, etc.

John K. Freeman: I recall having seen one case of complete inversion of the uterus many years ago. In those days we did not know much about pituitrin, but we were familiar with the action of ergot. The woman was delivered by a midwife who made traction on the cord, which Dr. Rubel mentioned having done in one of his cases, and she inverted the uterus. I was called to see the patient and found her in collapse. I realized that haste was required if we expected to save her life, and after hasty preparation I proceeded to replace the uterus. I did not attempt to separate the placenta from the uterus, and much to my surprise there was little hemorrhage. After waiting an hour the placenta separated and came away. We did not give the woman pituitrin nor ergot, but did give her some strychnine and whisky. The patient recovered without untoward incident. She had no elevation of temperature in spite of the fact that she was delivered by a dirty-handed midwife who had inverted the uterus by traction on the umbilical cord. I have never made traction on the cord, and have never been in a hurry about delivering the placenta in any of my cases of obstetrics. I have waited an hour and sometimes longer for the placenta to separate.

I saw another case of uterine inversion in the Louisville City Hospital. It was a spontaneous inversion during premature delivery and occurred immediately after the uterine contents had been expelled. We had no trouble in that case in replacing the uterus.

C. W. Karraker (closing): Answering the question of Dr. Davidson: In closing the uterine wound following Cesarean section we first used through-and-through surtures of No. 2 chromic catgut. I believe four sutures were inserted in that way. We then reinforced the closure by the ordinary running suture.

TOXEMIA OF PREGNANCY ASSOCIATED WITH PELLAGRA—CASE REPORT.*

By Henry Enos Tuley and Thomas Farris Hale, Louisville.

Through the courtesy of Dr. T. F. Hale I recently had the opportunity of seeing a very interesting case that I want to briefly outline and will ask him to make the balance of the report. I have never seen a case just like it and think it will be of interest to the society.

The patient was a young woman from Alabama who had pernicious vomiting of pregnancy. She was about three and a half months advanced in utero-gestation. After a thorough trial of the usual remedies without avail, we finally decided the only way to relieve the symptoms was by evacuating the contents of the uterus. This was done, but instead of improving the patient went from bad to worse. This was about a week ago.

I saw the patient again day before yesterday at which time a very peculiar condition presented itself. She had lost flesh rapidly, she presented a brain symptom complex which Dr. Hale will describe, she had a considerable amount of hallucinations, not very much rise in temperature, a rapid rise in the pulse rate; but the feature which impressed me most forcibly was a peculiar bronzing of the skin on the forearms, legs and cheeks with a tremendously dry tongue. The case impressed me at once as being one of pellagra.

The symptoms noted prior to emptying the uterus had been present for three or four weeks. In addition to the mental symptoms and rapid wasting there was considerable diarrhea. The patient died last night.

The case represents so many interesting features that I thought it worthy of bringing before the society. I will ask Dr. Hale to continue the report more in detail.

FURTHER REPORT BY DR. HALE.

I hardly know why I should present this case record, except that the patient came to me originally. The direction of her treatment was in the hands of Doctors Speidel, Tuley and Hagan, and the laboratory work was done by Dr. Moore.

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*Clinical report before the Louisville Medico-Chirurgical Society.

I first saw the patient December 16, 1921, and again January 21, 1922, when the following history was obtained: Her chief complaints were: Dizziness, "fainty feelings," hot flashes over body, irregular and delayed menstruation.

The patient's last regular menstrual period occurred the first week in September, 1921, The next two periods occurred at two months intervals, the last beginning December 20, 1921. The subjective sensory disturbances mentioned under chief complaints began about the time the missed period was due and lasted until the next period began. For the last two weeks the patient has had a dragging ache in the lumbar region; she has noticed lately that her tongue has become cracked; there is a tendency to constipation. Otherwise she has had no gastro-intestinal, bladder, respiratory or cardiac dysfunction.

The past history shows that the patient had the minor diseases of childhood; influenza in 1918 which left her partially deaf; first pregnancy terminated in November, 1916, and was attended by vomiting during the later months; second pregnancy terminated in August, 1920, and was attended almost from the beginning by such severe emesis that interruption of pregnancy was considered. One grandmother had illness during each pregnancy similar to that of this patient; father and mother had two children living and well.

The patient has been married seven years; is a housekeeper by occupation; has always lived in the South, and at present is living temporarily in Louisville with her husband, who is a clergyman attending a theological seminary, living conditions said to be hygienic; no drug habits.

Physical examination shows an adult white female, twenty-six years old, of slight bony framework, normally developed musculature, and scantily developed panniculus adiposus; skin is of normal texture and thickness and is free from eruptions or other discolorations; no lymphatic adenopathy. Head: the patient is slightly deaf; tongue protrudes in midline, is free from atrophy, is large and thick, the edges indented by the teeth, and the dorsum coated and marked by fairly deep fissures; no gingivitis; teeth irregular but well kept; tonsils not enlarged; posterior pharyngeal wall granular and reddened; eyes move in coordination in all directions; pupils equal, centrally placed, and respond promptly and fully to light and in accommodation. Lungs: percussion note of normal resonance throughout; no abnormalities of tactile or vocal fremitus; respiratory excursion fair and equal on the sides; breath sounds vesicular except over right apex where expiration is slightly prolonged and high pitched, and over the roots where normal bronchial element is present. Heart; no increase in size of cardiac area; no thrill; apex beat weakly papable in fourth interspace within the left midclavicular line; first sound rather lacking in muscular quality, second distant; no murmur; no arrhythmia; rate, 78. Abdomen: linea albicantes in skin; no tenderness, rigidity or masses; no movable dulness. Extremities: power in all movements proportionate to musculature; tendon reflexes prompt and equal on the two sides and without exaggeration; no tremor. Blood pressure 105-65. Pelvic examination: no increase in size of uterus reported; cervix hard; uterus in anterior position. The patient was asked to return in a month.

She again appeared February 22, 1922, with a history of nausea and vomiting during the past week, stating furthermore that she had missed her January and February menstrual periods. Vomiting being uncontrollable at home, she was admitted to the Norton Infirmary February 27th. Her course there was as follows: Temperature, 99°., pulse, 76; respirations 16 on admission. Urine: acid, straw colored, clear, no albumin, sugar nor casts; acetone, diacetic acid and indican present.

February 28th: Blood: hemoglobin, 70%; erythrocytes, 4,352,000; leucocytes, 8,950. Differential: polymorphonuclears, 64%; lymphocytes, 34%; eoisnophiles, 1%; endothelials, 1%; no pathological changes in size, shape, or staining reaction of the red cells. Urine; no albumin, amber, specific gravity, 1,027; no albumin, sugar, casts, erythrocytes nor pus; acetone bodies and indican present. Gastric analysis (vomitus used): free HCl. negative, total acidity, 4; lactic acid negative; occult blood positive; microscopic examination negative. Blood chemistry: plasma bicarbonate 39.5 volume per cent; non-protein nitrogen 31.5; creatinin 1.5 (mg. per 100 c.c.). Patient dismissed from hospital, vomiting uncontrolled.

March 2nd: Readmitted to hospital. Patient nauseated constantly, is very weak, vomits repeatedly without relation to food. Urine: specific gravity, 1017; albumin and occasional granular cast present; no sugar; acetone bodies and indican present as before.

March 3rd: Examined by Dr. Speidel who diagnosed pregnancy of about three and one-half months' duration and advised further conservative treatment before considering terminating it.

March 4th: Patient had sleepless night; had generalized rigors at 4:00 A.M.; hands feel numb and lifeless this morning; fingers of right hand observed in tonic spasm resembling that of gastric tetany; complains of air hunger.

March 6th: Patient complains of numbness in hands and feet still, but not of air hunger; no recurrence of rigors or tetany.

March 7th: Patient complains of intense nausea on administration of each nutrient enema; of cramps in toes of left foot; of pain in the back; and of a "weak, fainting away" feeling, as though she were drifting off into space."

March 8th: Patient complains of extreme nausea and weakness; had severe cramp-like pain in abdomen and contraction in extermities of right side last night; nutrient enemata not being retained. Administration of fluids intravenously to be begun.

March 11th: Nausea and vomiting unchanged; patient complains of restlessness at night and insomnia; muscular contractions less marked; urine during the past week has continued to show albumin, casts, and acetone bodies; specific gravity has ranged between 1017 and 1028.

March 15th: Patient is retaining rectal feedings; nausea and vomiting persist; urine for the past four days has continued to show albumin, casts, and acetone bodies; specific gravity has ranged between 1005 and 1009. Blood pressure, 104-65.

March 23rd: Patient is feeling stronger; nausea and vomiting persist, but to a lessened degree; has lost weight apparently; skin is dry; that about elbows and knees is slightly rough, scaly, and dirty looking.

March 25th: Attempts at feeding by mouth cause recurrence of profuse vomiting.

March 27th: Dr. Tuley suggests gastric lavage with two per cent sodium bicarbonate solution.

March 30th: No relief from nausea and vomiting followed lavage; patient much weaker; is apathetic and anemic looking; Dr.. Tuley concurs in need of immediate evacuation of uterus.

March 31st: Catheter introduced into uterus and vagina packed.

April 3rd: Uterus emptied by Dr. Hagan.

April 4th: Nausea and vomiting less; pulse rate more rapid; patient restless and weak; complains of insomnia.

April 5th: Patient was very restless during the night, and appeared to be unable to talk clearly.

April 6th: Patient restless and uncomfortable; temperature, 99° F., pulse 104, respiration 20; nausea and vomiting nearly gone; patient entirely rational and well oriented during the day.

April 7th: Patient speaks of seeing double; she is practically powerless; her hands and feet feel stiff subjectively; she complains of a sense of tremor in her extremities. On examination her pupils are equal and contract promptly, fully, and equally to light; power in all movements of extremities is greatly reduced; tendon reflexes are absent; no resistance to passive motion; no clonus; no Babinski; she is well oriented and entirely rational.

April 9th: Patient complains of burning sensation in mouth; temperature, 100°., pulse 108, respiration 20 (night); otherwise no change.

April 10th: Temperature 100° F., pulse 116, respirations 20 (morning); temperature 99° F., pulse 104, respirations 20 (night).

April 11th: Temperature 99° F., pulse 126, respirations 32 (noon); temperature 98° F., pulse 116, respirations 32 (night). Patient has had five thin light colored fecal evacuations during the day. Nurse notes frequency of urination.

April 12th: Temperature, 99.3° F., pulse 114, respiration 30 (morning); temperature 100¼° F., pulse 124, respiration 36 (night). Diarrhea (seven fluid tools) continues; patient had a restless night; she retains her food, but still vomits bile colored fluid once or twice a day; diplopia not so marked. On examination no change in nervous findings of April 7th noted, except additional observance of preservation of all forms of sensation and positive Trousseau sign in upper extremities; there was a harsh systolic murmur over body and base of heart to the left of the sternum not transmitted to the axilla. Blood pressure 123-70. Urine: specific gravity 1003; acetone bodies and indicant present; small amount of albumin and a few hyaline and granular casts still present. Blood: hemoglobin, 60%; erythrocytes, 2,848,000; leucocytes, 6,950. Differential: polymorphonuclears, 74; lymphocytes, 26; no changes in red cells reported. Blood chemistry: non-protein nitrogen, 24 mg. per 100 c.c.; urea nitrogen 8 mg. per 100 c.c.; plasma bicarbonate 65 volume per cent. Spinal fluid: no increase in pressure; globulin negative; cells 5 per cu. mm.; glucose 100 mg. per 100 c.c.

April 13th: No improvement; temperature 98.4° F., pulse 128; respiration, 38; diarrhea and frequency of urination continue. Seen by Dr. Tuley, who suggests the possibility of pellagra; this opinion concurred in by Dr. Young. Urine (incomplete twenty-four hour specimen): specific gravity, 1011; albumin, cloudy; total nitrogen, 500 mg. per 100 c.c., or 0.5%; ammonia nitrogen 79 mg. per 100 c.c., or 15.6% of total nitrogen; urea nitrogen 330 mg. 330 mg. per 100 c.c., or 66%

of total nitrogen. At ten o'clock P. M., temperature 101.6° F., pulse 136, respiration, 50; patient somnolent but easily aroused; she is then rational and well oriented. The patient died at 11:15 P. M. Temperature 103.4° F., pulse 136, respiration 50 just before death.

DISCUSSION:

John W. Moore: In the case reported the total nitrogen in the blood was not increased. To my great surprise and amazement in the last examination of her blood I found a very low urea content as compared with the total nitrogen. The total nitrogen was 24 mg. with only 8 mg. of urea nitrogen to 100 c.c. of blood.

Another point was at my first examination several months ago the alkaline reserve was low, viz., 39 volume per cent, indicating what we term a moderately severe acidosis. Later when the patient was in a much more serious condition we were surprised to find the alkaline reserve had increased to sixty-five per cent. I then asked Dr. Hale what the patient had received in the way of drugs, and was informed that he had been giving her sodium bicarbonate and calcium. Of course, that accounted for the high alkaline reserve noted in the second examination. The spinal fluid showed the same amount of alkaline reserve as the blood. The blood sugar (glucose) was found to be 100 mg. to 100 c.c. of blood. The normal amount is between 40 mg. and 50 mg. In other words, there was a decided increase. We had hoped Dr. Hale would be able to determine whether or not there was any hepatic functional inefficiency to account for the symptoms. A twenty-four hour specimen of urine could not be collected for examination for the reason stated by Dr. Hale. We only had about a twelve hour specimen. The urinary findings were not unlike those reported by Sullivan in the Archives of Internal Medicine, July, 1921, in pellagra. There is an increase in the total nitrogen in the urine in ratio to the urea, and an increase in the percentage of ammonia, with a decrease in creatinin and uric acid. In the case reported, however, there are many other factors which have to be considered. I understand that in some cases of encephalitis much the same conditions have been encountered.

Wm. J. Young: I saw the patient mentioned by Dr. Hale four days ago. The skin lesions were represented by a decided bronzing of the extensor surface of the forearms, the knees and around the legs especially at the ankles. All the skin lesions, especially those about the knees, were scaly. From the standpoint of pellagra the case was somewhat atypical, although in this disease there is usually a certain amount of scaling. The patient was very weak and unable to respond to questioning and the history showed a certain amount of mental disturbance. From a dermatological standpoint I may say it was impossible to make the diagnosis with any degree of certainty. I made the diagnosis of pellagra simply because that was the most plausible conclusion under the circumstances. I cannot conceive of any skin disease that would fit the case more closely than pellagra, but whether this diagnosis was correct or not cannot be stated with any degree of assurance.

C. W. Dowden: I would like to preface my remarks by saying that I know little or nothing about pellagra. The gentlemen who saw this patient are in better position to make the diagnosis than the balance of us, and what I am about to say is not intended as a criticism. The patient came from a section of the country where we know pellagra prevails to greater or less extent, and the diagnosis made by Dr. Tuley and Dr. Hale is probably correct; still pellagra would not have occurred to me based upon the history as we have heard it related. In the first place the symptoms developed suddenly in a pregnant woman; the peculiar bronzing of the skin was not reported by Dr. Tuley as being localized and was associated with marked weakness, nausea, vomiting and low blood pressure. With such a history my first thought would be of Addison's disease. My impression is that pellagra is an infrequent complication of pregnancy; moreover, the disease does not develop suddenly, its course is essentially chronic and progressive. Addison's disease in the acute form frequently accompanies or follows pregnancy, especially where there is more or less disturbance going on in the ovary, adrenals, thyroid, etc. In spite of the diagnosis of pellagra it seems to me the entire clinical picture in the case reported can be explained on the basis of tuberculosis of the suprarenals. If we had a pathological report on the suprarenals it would prove most interesting. Confronted with a history such as described by Dr. Tuley and Dr. Hale, Addison's disease would be the first thing which would occur to me.

J. Garland Sherrill: I agree with Dr. Dowden that it hardly seems fair to comment on the case reported, especially as regards the diagnosis, without having had an opportunity to see the patient. However, based upon the history as detailed by Dr. Hale I do not see how it would be possible to make the diagnosis of pellagra. It must be remembered that pellagra is primarily and essentially a chronic affection; it is not a disease with a definitely limited course; the diarrhea of pellagra usually occurs through many months; the eruption of pellagra appears each spring and summer and the history extends over a period of from one to two years.

I believe the condition of the skin in this case can easily be accounted for by the toxemia of pregnancy. Bronzing of the skin is often seen in cases of sepsis and the ordinary toxemias of pregnancy. The question is, are we not overlooking the real cause of the patient's illness trying to find something rare, obscure and indefinite.

My opinion may be incorrect, but based upon the report which has been made I would be inclined to decide that the toxemia of pregnancy could be held accountable for all the symptoms presented and that the patient did not have pellagra. The history of diarrhea, nervous and mental symptoms, the skin lesions, etc., can all be readily explained by the toxemia of pregnancy. It is significant that these symptoms appeared in the terminal stages of the affection.

W. E. Gardner: I have seen two or three patients showing general nutritional disturbances that I suspected had pellagra, but the diagnosis was not confirmed by the subsequent history. I was particularly anxious to hear some of the dermatologists discuss this question. The history of diarrhea, mental confusion and sore mouth, of course, is suggestive of pellagra, and the eruption appearing on the extensor surface of the arms and legs would seem to confirm the diagnosis of pellagra, but I believe in many cases there may occur marked exhaustion, anemia, etc., from the toxemia of pregnancy and other toxemias, or possibly from tuberculosis of the suprarenals as mentioned by Dr. Dowden, the patients presenting general nutritional disorders with a syndrome simulating pellagra, and yet the symptoms are not always due to pellagra. I have seen a few cases of this kind where the symptoms disappeared under appropriate treatment and there was no recurrence. In pellagra we know that if the patient lives long enough he will have a recurrence of the skin lesions, stomatitis, diarrhea, etc., year after year.

In the case reported, of course, I cannot say that the disease was not pellagra; in fact, the history is somewhat suggestive of that disease, at the same time there are other things which have to be considered in the diagnosis.

Henry Enos Tuley (closing): The diagnosis of pellagra seemed most likely to me principally because of the skin lesions. I have seen many cases of pronounced toxemia of pregnancy, some of them fatal, but none of the patients presented skin lesions such as those in the case reported.

It seems to me that in the condition of long-continued starvation, insufficient solid foods, and perhaps improper foods, we have circumstances favorable for the development of pellagra. It must also be remembered that this patient came from a district where pellagra is prevalent. While it is true that pellagra usually develops slowly and represents a chronic affection, a few cases have been reported where the disease was acute in type. It seems to me that pellagra is the most likely diagnosis in the case reported.

I have been very much interested in the discussion.

FAT INTOLERANCE.*

By James W. Bruce, Louisville.

Fat intolerance is one of the most common forms of indigestion encountered in infant feeding and also one of the most difficult to handle. Fat is the most valuable food from a nutritional standpoint, since it contains twice as many calories per unit of weight as either protein or carbohydrate. Therefore, if an infant is able to digest only a very little or no fat, it is easy to see what a difficult problem we have in attempting to give proper nourishment and to make it grow and gain weight in a normal manner. In such cases we are forced to ''make up'' for the deficiency in fat by the addition of abnormal amounts of carbohydrate and protein, and this is a dangerous thing to do. Excessive quantities of carbohydrate cannot be digested and absorbed by the intestinal tract, and give rise to fermentation with the production of irritating acids and gas which result in troublesome and debilitating diarrhea. Excessive quantities of protein also are not well tolerated in the intestine and give rise to abnormal putrefactive processes, which, while not so dangerous as excessive fermentation, are yet incompatible with proper intestinal function. The ingenuity of the attending physician is taxed to the limit in order to provide sufficient calories for growth without at the same time starting a fermentative or putrefactive process that will endanger the life of his little patient.

It is not known why a baby will digest the 4 or 5 per cent fat of its mother's breast milk and yet become violently upset on the 1 per cent or 2 per cent fat of a cow's milk mixture. Various explanations have been offered but none found satisfactory. One theory is that the globules of cow's milk fat are much larger than those of human milk and therefore harder to digest. Following this line of reasoning the milk of goats or mares has been recommended by some, because the globules of fat in the milk of these animals are smaller than those in cow's milk. This suggestion was followed at one point in the treatment of the case about to be related, but the results were not satisfactory.

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*Read before the Jefferson County Medical Society.

In general fat indigestion is characterized by vomiting, abnormal stools, and either a failure to gain or actual loss in weight. Individual cases vary in their symptomatology and according to which symptom is the outstanding feature of a case, they can be conveniently classified as follows:

1. Those characterized by vomiting.
2. Those characterized by large, hard, constipated stools, so-called "soap stools."
3. Those characterized by soft semi-formed stools containing some mucus and soft fatty curds.
4. Those characterized by loose green stools.

In the first class mentioned where excessive vomiting is the outstanding symptom, the stools frequently present no abnormality. In these cases the fat never gets past the pylorus as the irritated stomach throws it out. It has been shown that an execessive amount of fat in a normal stomach or a small amount in a stomach sensitive to fat, will cause delay in the pyloric opening reflex and vomiting of the offending substance.

Those cases in which the fat gets into the intestines show abnormalities in the stools. The type of abnormality depends upon the predominance of the fermentative process or the putrefactive process in the intestines. If putrefaction predominates the reaction of the intestinal contents is alkaline and the fats form soaps with the alkali contents, calcium and magnesium, and give rise to constipated "soap stools." If fermentation predominates the reaction of the intestinal contents is acid and the fats form soaps with the alkali bases, sodium and potassium, and pass out a soft fatty curds.

The last group of cases characterized by loose green watery stools containing fat in the form of soap, fatty acids and neutral fat, are the subject of dispute, as many authorities believe that they are caused by carbohydrate fermentation and the fat is present in undigested form as a result of increased peristalsis and diarrhea.

The following case falls into the first class mentioned, as the baby vomited whenever an attempt was made to increase the quantity of fat.

CASE HISTORY.

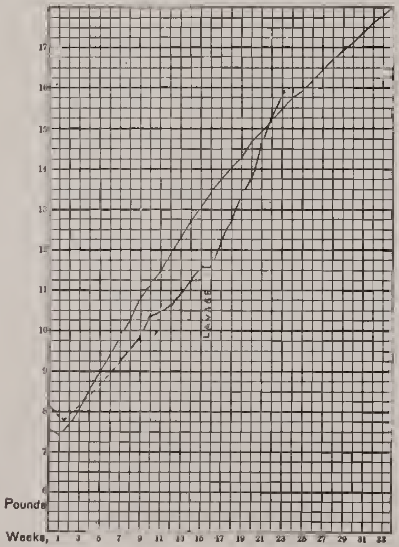
R. M., male, aged 7 weeks, birth weight, 8 lbs. 2 oz., present weight 9 lbs. 4 oz. Second child of healthy parents. Two first cousins and an older brother had never been able to digest cow's milk fat and had the same history of vomiting as in this case. Normal labor. Breast fed for two weeks, then fed on cow's milk mixtures. He had progressed well on the breast, but had vomited persistently when fed artificially. The vomiting did not occur immediately after feeding, but after an interval of thirty minutes to an hour and a half. It was not forceful in type, but simply "rolled out of the side of his mouth." It was very sour and the milk was curdled. There was nothing about the case to suggest the forceful, projectile vomiting of pyloric stenosis or spasm.

At the time I first saw him he was getting a 6-20 cow's milk mixture—2½ ounces every 2½ hours—9 feedings in 24 hours.

Physical examination was entirely negative except for the presence of a moderate degree of malnutrition.

A diagnosis of fat intolerance was made on the type of vomiting and character of the vomited material.

The baby was put on a mixture of Dryco powder as this preparation contains a low fat percentage and is more digestible than cow's milk. For six weeks we struggled to nourish him with this food, during which time he gained on an average of 4½ ounces a week. It was found that every time the Dryco was pushed to where the fat was more than 1% the baby vomited. If the fat was kept below 1%, there was less vomiting, but there were not sufficient calories to maintain proper growth.



It was then decided to abandon Dryco and gradually substitute skimmed cow's milk and to increase the carbohydrates. This change was made very slowly as it is a well established principle in infant feeding that when a baby is doing moderately well on a food, no sudden change should be made. However, in spite of the lowering of the fat percentage the baby continued to vomit. This is not considered an argument against the diagnosis of fat in intolerance, however, because withdrawal of fat does not always stop the vomiting.

Gastric lavage was resorted to and the result was remarkable. Whereas the baby had been gaining 3 or 4 ounces a week, he now began to gain 7 to 10 oz. a week; and from being 2 lb. underwweight for his age, he passed the normal weight line in six weeks. At first lavage was given every day for a week, then every second day and after that about twice a week. The vomiting never ceased entirely, but was greatly diminished. Lavage is a very simple procedure in a young infant and in this case I believe it was life-saving.

During the time the lavage was being employed an attempt was made to feed the baby evaporated goat's milk. The goat's milk was transferred from the cans in which it is marketed to test tubes; each tube containing ½ to 1½ oz. and sterilized. At first ½ oz was added to the 24-hour feeding. This was increased every four or five days until 2 oz. were being used. During the week that the baby was gettting 1 to 1½ oz, a day he gained 14 oz.—more than he had ever gained before or since. Shortly after this, however, he began to vomit violently and the goat's milk had to be discontinued.

The outstanding feature of this case is the remarkable response to gastric lavage in a baby whose proper growth and nutrition had seemed hopeless before this procedure was adopted.

DISCUSSION:

M. Flexner: I would like to ask Dr. Bruce when he practiced gastric lavage in the case reported, that is, in relation to feeding of the child, what he obtained and why in his opinion lavage seemed to improve the digestion of the infant.

James W. Bruce (closing): I cannot say why it is that gastric lavage seems to improve digestion, but believe it has been the experience of most observers that in cases such as I have reported lavage is of great benefit. Lavage was practiced just before feeding time. We always found considerable undigested material still in the stomach, showing that the pylorus was involved more or less in spasm and the stomach did not evacuate itself normally. Thinking there might be spasm of the pylorus we administered tincture of belladonna in small doses for a time, but as no appreciable benefit was secured the drug was discontinued.

By referring to the chart it will be noted that whereas at first the child gained only three to four ounces a week, during the later treatment he suddenly began to gain seven to fourteen ounces each week.

THYROID GLANDS.*

By H. C. Clark, Falmouth.

In order that a better understanding may possibly be had by the general practitioners of this ductless gland and its mysterious function, we must take up the study of the organ, its location, its secretion and its function. The gland consists of two lobes, one on either side of the trachea, connected by an isthmus and extending upward to the thyroid cartilage covered by the muscles of the neck and it varies in size in different individuals. The gland is encased in a thin transparent layer of dense areolar tissue and free from fat, the capsule sends in strong fibrous connections enclosing the vesicles, these vesicles are rounded or oblong, irregular sacs, consisting of a wall of hyaline membrane lined by a single layer of cells. These vesicles are filled with a coaguable fluid or transparent colloid or jelly material in the interstitial connective tissue is a round,, meshed, capillary plexus and a large number of lymphatics and the nerves adhere closely to the vesicles.

There is little known definitely about the function of the thyroid body. We know, however, it produces this colloid material of the vesicles and which is carried off by the lymphatics and unloaded into the blood. Therefore it may contribute its share to the elaboration of that fluid, the destruction of the red blood corpuscle is suffered to go right on in the gland forever.

In an early day surgery of the gland was almost abandoned, only to be revived time after time until the present day when we find a new interest being taken and some more light let in to clear up the fields of vision for the surgeon and physician as well. But really we are only feeling our way into a mysterious and dark section of an almost trackless territory. At this time when the subject is receiving so much attention, the general practitioner should become more familiar with all phases of the thyroid gland in disease. There is not much the physician can do in the way of medication and there is also territory forbidden to the surgeon and sections which he may not enter. The physician of the day should be able to give proper advise to their patients as to the best thing to be done in the presence of goiter, it is along these lines that some good may be accomplished by the presentation of this subject. Now the thyroid gland is very much like other ductless glands, the spleen, the tonsils, the pituitary, the carotid, and the coccygial gland, all of which we know but little, but we do know these various glands furnishes secretion in health that assists in the metablation of the blood, and they must be respected by the surgeon, "thus far and no further" can be said when the spleen is reached, it is dangerous also to approach the thyroid glands with a knife under certain conditions as is the spleen.

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*Read before the Pendleton County Medical Society.

It is comparatively but a short while since anything definite was known of the real pathology of this gland and just at this time it is receiving marked considertion, it will be good for the general practitioner to take up the study and fall in line. I shall speak of some of the prominent conditions met with in these glands, in an every day practice. Inflammation taking place in the gland, marked by acute swelling, redness, heat and pain is a very rare condition to be met with and still more rare is the formation of pus, ductless glands in every portion of the human body are the last to become tubercular primarily. In the experience of a long professional life we have not witnessed such condition as acute abscess or tuberculosis in the thyroid gland.

This brings us to the consideration of interstitial thyroiditis when from any cause an increased amount of activity in the secretory power of the gland has been disturbed and over distended, we call this condition goiter or bromchocle. At this time because of the enlargement is enshrouded in uncertainty, however, we know somewhat more of the importance of the gland to the metabolism and nutrition of the body than we ever knew before. And we know now the total absence or removal of the gland or its occasional degeneration leads to the accumulation of mucin in the body often producing tetany, also it has been stated that the symptoms of Graves' disease are due to the excessive absorption of the abnormal or vitiated thyroid secretion. As to what change really takes place in the secretion, the profession today is not thoroughly informed, but we do know that its normal secretion is of such value to the economy that its altered or diminished quantity is the direct cause for intellectual weakness, and we further know that like commercial prosperity the import and export must be equal to have a healthy condition of trade, and so it is with the secretion of this gland and its influence on life. Where there is too much secretion a hyperthroidism and over distention is produced, the gland is enlarged, the change in its secretion is great. That blood changes are produced, often ending in leukemia, puerpura and hemorrhage from all mucous membrane, then again the very opposite condition of impoverished secretion, the bland is contracted, hypothyroidism exists, a change in the character of the secretion in some way having taken place produces a vitiated blood and a general constitutional condition follows, with mental and physical development destroyed and premature ossification occurs in the young. With the many changes observed in the head and face once seen never to be forgotten, a condition of idiocy, stunted growth, and mental disease results, and both conditions to some extent have similar results. Frequently there is an enlarged thyroid with enormous distention which apparently gives no disturbance to the patient except the annoyance of the large tumor and for years they may continue right along in the ordinary walks of life without the least disturbance, and it would seem they were in the full enjoyment of good health; in some others the very reverse takes place, there being but a small enlargement, scarcely noticeable, toxemia affecting the entire system prevails, and so it is not the size of the tumor, but the toxic condition which marked the two principal varieties after all.

There are still other classifications which should be spoken of at this time that a more complete understanding may be had of all phases of the diseased glands, but the subject is too great, too many interesting and practical sides to the question to even more than touch on the subject in this rambling paper.

We shall venture to take up one or two more phases of this subject before laying it aside, exophthalmic goiter and cretinism will be touched on, exophthalmic goiter coming frequently in early life at from twenty to thirty years of age and about three women to one man are affected, there does not seem to be any history of heredity, yet sometimes several cases occur in the same family and there is but little doubt at the present day that it is due to excessive thyroid action, or diminished or altered secretion. The leading symptoms are enlargement of the gland, prominence of the bulging eye, tachycardia and tremor. These symptoms do not always develop in the order that I have named, but ultimately the majority of them make their presence to a greater or lesser degree. As in simple goiter either lobe or both lobes may be enlarged, but seldom extremely enlarged at any time, the thyroid vesicles become dilated and a noticeable thrill may be felt or even seen, and various murmurs heard over the tumor mass and at this same time that the enlargement is noticed one or both eyes begin to show their prominence, and the white of the eye shows entirely around the cornea and in looking down the upper lid does not follow the movements of the eyeball and the protusion grows more prominent day after day until it is soon seen that the eyeball has almost left the socket, vision as a rule remains normal, but the arteries of the retina throb and can be seen to pulsate, a general inflammation setting up has been known to destroy the eye entirely, keeping in mind the four cardinal symptoms just described, the exophthalmic goiter the diagnosis is usually easily made now and then a case of short standing recovers, but in well established cases it is very rare indeed that they get well.

In goiter and exophthalmic goiter there is an excessive action of the thyroid gland, but in the following conditions the opposite prevails. I refer to cretinism. This horrible condition may develop soon after birth, puberty, or the child may be born without a thyroid gland, or may have only a partly formed gland which fails to develop, the child sometimes appears like other children for a month or two after birth and until about the sixth month of age a marked change is noticed, defects begin to show themselves, growth of the body and the mind is retarded. It is noticed that the fontanels have not properly closed, the hair is thin, the skin dry, the tongue lolls loosely from the mouth and seems too large, the complexion is pale and yellow, the face swollen and the toad-like eyes peek through a mere slit in the puffy lids, the nose is flat, the few teeth appear a little later at frequent intervals and promptly decay and disappear, the hands of this pot-bellied child are stubby and nearly useless appendages to the short stumpy limbs, the mind is as deformed as the body, idiocy and imbecility are common terminal stages, in certain parts of the world an endemic form of this disease exists, associated with goiter, the resulting symptoms are much the same as a sporadic case, but there surely is a difference in the primary cause not thoroughly understood at present.

I crave your pardon for offering this disjointed and poorly worded paper for your consideration, hoping only to provoke a discussion, if possible, which shall be of some benefit to the profession.

Typhoid in Infants.—In the four cases described, one terminated fatally, and this is the usual outcome in infants less than a year old. The clinical picture is always vague and incomplete, so the diagnosis at first is merely a suspicion from the stupor, the dry red tongue, the continuous fever, and the diarrhea persisting even on restriction to water.

QUARTZ LIGHT THERAPY.*

By Samuel J. Rose, Winchester.

The writer became interested in the use of the Alpine and Kromayer mercury-quartz lamps a year ago while in New York, his attention first being called to their uses in the New York Skin and Cancer Hospital. The results that were being obtained in many local conditions, such as chronically enlarged and inflamed tonsils, pyorrhoea, certain skin conditions of the scalp and loss of hair, prostatistis, hemorrhoids and the like were a revelation to him and served to stimulate him on to further investigation. Dr. William L. Clark's results in the treatment and cure of port wine birthmarks, a condition with which are all familiar, Dr. Leo C. Donnelly's excellent work in the general uses of both the Alpine and Kromayer lamps and especially in tuberculosis of the various types, not to mention the results obtained in most every type of disease, reported by men like Plank, Edgar Mayer, Fred Wise, A. Schuyler Clark, George M. McKee, Hugo Bach, Donald McCasky and a host of other eminent physicians, both in this country and abroad, were so interesting and convincing that the writer purchased both the Alpine Sun lamp and Kromayer water-cooled lamp, and although he has not had these lamps a very great while, the satisfactory results obtained by their use seem worth while reporting.

Miss T. G., age 25, suffering from ovaritis for years, dysmenorrhea, leucorrhea and chronic constipation had been coming to the writer's office for almost a year. All of the generally recognized treatment failed to give more than temporary relief. Vaginal examination with bivalve speculum revealed nothing except a muco-purulent discharge. After the lamps were received the medium sized Wagner applicator was inserted in the vagina and the light from the Kromayer lamp's reflection revealed an ulcer almost the size of the small finger nail on the left side of the vaginal wall. Eight treatments of from three to six minutes with the water-cooled lamp healed the ulcer and the discharge ceased. Following a month's treatment with Alpine lamp over the chest and back the constipation was practically gone, pains in the ovaries had disappeared, menstration periods were no longer dreaded, appetite excellent, sleep improved, gained from 118 pounds to 135. Had not felt as well in fifteen years.

A. H., colored 82 years old, had been treated for ten years for syphilis and shingles, according to his statement. An ulcerating syphilitic bubo was at least two inches in depth and mucous patches covered the greater part of the mouth and tongue. The "shingles" that he complained with covered the entire back and the left side. This condition reminded one of the underground work of the mole where he has left the earth's surface elevated from his excavations. Patient complained of very severe itching and burning over the involved area. The syphilitic condition was cleared up by means of arsphenamin and "mixed treatment," while the shingles with all symptoms disappeared entirely after thirty treatments with the Alpine lamp.

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*Read before the Clark County Medical Society.

E. R., age 62. prostate greatly enlarged, producing very difficult and painful urination and a constant dull pain in the rectum, began the use of the Kromayer lamp August 20. 1921, after all other treatments given him had failed to bring about relief except that produced temporarily by use of opiate suppositories. Treatments of two minutes' duration three times a week increased to nine minutes resulted in the disappearance of all symptoms after four months' application.

C. R., colored, age 56, called the writer to his home where patient was found to be suffering from retention of urine for thirty-six hours. Soft and web catheters failed to penetrate into the bladder, necessitating the use of a hollow steel catheter. The forced insertion of the metal instrument unavoidably traumatized the prostatic urethra so that rapid congestion called for further catheterization, with soft rubber catheters. His prostatic condition to which was added the traumatizing catheterization forced the patient to bed, but after having been brought to the office four times in a taxicab where the Kromayer lamp was used per rectum, he was able to walk to the office, a distance of half a mile, for six more treatments, after which he went back to farm work where he had been previously employed. No other treatment was given other than five grain urotropin tablets three times a day.

M. W., age 25. Asthma and hay fever. Symptoms usually began about August and for the past three years, during which time the writer has treated the patient during these attacks, they were so severe that nothing seemed to give any relief except morphine hypodermatically in half grain doses two or three times a day. This was continued for nearly a month when the attacks would cease until the following August. Last August after her attack was at its worst the use of the Alpine lamp over the back and chest and the Kromayer for the nose was instituted and after eight treatments without the use of morphine, all symptoms disappeared and the patient said she never felt better in her life. Just whether the condition will return this coming August and in what form remains to be seen.

H. M., age 30, has been a hay fever victim for twelve years. Last year the use of the Kromayer lamp through the nose greatly relieved the attacks and this year ten treatments have entirely removed all symptoms.

W. M., age 60, formerly chief of police, has been a melancholia sufferer for ten or twelve years, had lost a great deal of weight and strength. Before his illness he weighed 220 and when he began taking treatments with the Alpine lamp he weighed 140, could not eat nor sleep. Said he was in a fight during the entire night and was exhausted when morning came. After having been brought to the office in a taxicab for six weeks he continued treatments for about four months. He eats well, sleeps fine, has gained 26 pounds and is back at work as a tax collector.

Although nose and throat work is ordinarily out of the writer's line, he has obtained some very gratifying results in not a few cases of acute tonsilitis, nasal catarrh and discharging ears. Four treatments over the Gasserian ganglion, over the frontal sinus and in the right nostril by means of the Kromayer lamp have relieved a severe case of trifacial neuralgia of eight months' duration. The case is still under treatment. Sixteen treatments with the Alpine lamp at a distance of twenty-four inches and gradually lowering to ten inches, beginning with two minutes and increasing to eleven minutes has stopped all pain and soreness in a case of arthritis in an old lady sixty years of age from which she has suffered fifteen years. Eight treatments have so relieved a case of gastric ulcer in a colored patient fifty years of age that he can eat molasses made from sugar cane without any unpleasant after effects. Before the treatments he could not retain milk, toast nor even water. The Alpine lamp was used at a distance at ten inches and a ten minute treatment given to begin with.

It is very important for the operator to remember that blonds are more sensitive than brunettes, and that the colored patient can tolerate three to five times more severe treatments than the patient.

Plank has proven that the Alpine lamp will penerate a body weighing 110 pounds in ten minutes, and that the Kromayer lamp will penetrate a hand in one-half minute. His conclusions with which the writer heartily agrees are: 1. Infected wounds of all kinds yield readily. 2. Actinic rays produce local effects when desired. 3. Actinic rays produce systemic effects, even at a distance from the area rayed. 4. Actinic rays energize. 5. Actinic rays soothe. 6. Actinic rays produce a benign inflammation which is not destructive, because they destroy existing infections. 7. General actinic rays should be of one minute only for the first treatment, increasing one minute per day until ten minutes are reached. 8. Actinic rays will not destroy normal tissue within a half hour's raying. 9. Local actinic-ray treatments may be given for ten minutes in contact if necessary. After many treatments are given the time may be increased to sixty minutes. Actinic-ray treatments should be given daily until improvement is noted and then less frequently.

In conclusion it is the writer's candid opinion that no matter what particular branch of medicine we are most interested our offices are inadequately equipped without the Alpine and Kromayer lamps, for it matters not how pleasing our results are nor how quickly we are able to obtain these results, the same satisfactory results can be more quickly obtained by the intelligent application of quartz light therapy. Each of us should ask ourselves this one question: "Am I neglecting a single measure which might aid those who repose in me their full confidence?" Physicians of the past were true confidants of those who confided in them; they gave their best. And through this slight contribution the writer hopes that the subject under discussion herein may impel all physicians to an honest investigation.

Uric Acid in Blood.—Uric acid was determined by Theis and Benedict in plasma and corpuscles in 104 cases, fifty-one of which showed equal distribution; forty-five showed plasma uric acid greater than corpuscle uric acid and eight showed a greater amount of uric acid in the corpuscles than the plasma. This relationship holds whether the blood is oxalated or defibrinated and does not depend on the pathologic condition. Added uric acid did not penetrate the corpuscles in 70 per cent of twenty bloods studied. In 30 per cent of the cases the added uric acid was equally distributed between corpuscles and plasma. The marked difference in permeability of the corpuscles of certain bloods for added uric acid is of interest, and suggests that other cells in the body may show similar differences in permeability. Such findings may tend to throw light on the questions involved in specific uric acid retention in the organism.

SYPHILITIC ANEMIA: BANTI'S DISEASE—CASE REPORTS.*

By L. Wallace Frank, Louisville.

I wish to report two cases, one is believed to be strictly medical, the other may be medical or surgical in character. The first case is purely medical, but is interesting from a diagnostic standpoint and illustrates what appears to be marked anemia due to syphilis. The second case is probably one of Banti's disease.

Case I.—Mrs. J. S., aged thirty-five years, was referred to us by Dr. John B. Stroud, who thought she might have gastric carcinoma.

Family history: Patient was married at the age of seventeen and had two miscarriages when she was young; she has had no children. Her husband is living and well; he says that he had a "soft chancre" many years ago and was given some "shots." The nature of this treatment he does not know.

Past history: Patient had typhoid fever years ago; "rheumatism" seven years ago with no cardiac complications so far as she is aware. In 1914 she had an abrasion of her leg which developed into an ulcer. The ulceration was at first about her right knee and gradually spread healing as it went. At present she has an ulcerated lesion extending around the right lower leg. Five years ago she had her ovaries and oviducts removed because of acute infectious disease. Five weeks ago she says she had grippe. She has been working in a tobacco factory for several years. During last year or two has used alcoholics rather freely.

Present history: The patient has some jaundice which she says has been in evidence about a year. This is noticeable only on the sclera. Otherwise, except for a slight cough, she has been well until eight weeks ago. At that time she developed shortness of breath, cardiac palpitation, some swelling of feet at night. She also lost her appetite and had "crampy" pains in her upper abdomen. No sour stomach but more or less heartburn. She has vomited on one or two occasions, but never vomited any blood. She felt hungry but when food was placed before her she had no desire to eat. She has lost about sixty pounds in weight during the last six months. Her alvine evacuations have been regular. Has had frequent nose bleed during the last few weeks. Has had slight cough for a year and on one occasion expectorated some blood. She says she "has pain around her heart and choking spells when she leans over." She tires very easily and has now lost her strength. There are no bladder symptms. Has had leucorrhea for a long time. Her menstrual periods have been regular, but last two months the flow has been scanty and of poor color. For several months she has been dressing the leg ulcer with acetanilid powder, using as much as two or three pounds per week.

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*Clinical Report before the Louisville Medico-Chirurgical Society.

Physical examination: The patient is fairly well developed, white female, whose tissues are soft and flabby, and she has the appearance of having lost considerably in weight. She is very pale and has a peculiar grayish color. Some puffiness about the eyelids; sclera definitely jaundiced; conjunctiva very pale. Pupils equal and react to light and accommodation; ocular movements free in all directions. Teeth in fair condition; some are missing. Tongue broad and has thin white moist coating; pharynx and throat negative. Submaxillary lymph nodes palpable on both sides; no thyroid enlargement; no abnormal pulsations. The breasts are pendulous and contain no abnormal masses. Chest expansion fair and equal on the two sides. Examination of the lungs reveals a few scattered rales about the roots. On the left in axilla and over front and side of chest are heard loud, rough friction sounds. Otherwise examination of lungs negative. The heart is enlarged to right and also to left; apex beat about one cm. to outside of mid-clavicular line. Over the apex and body of heart is a loud, rough, systolic murmur transmitted into the axilla. No abnormal sounds over aortic area. Over base of heart friction is heard on respiration, but this ceases when patient holds her breath.

The abdomen is distended and there is still a fair amount of fat. Lower midline shows operative scar well healed. There is marked tenderness over entire upper abdomen; no tenderness, rigidity or masses over lower abdomen. The liver extends from the fifth rib on right side to about eight cm. below costal margin, the left lobe is also enlarged. The edge is sharp, firm, liver surface seems smooth and is very tender. The spleen extends about four cm. below costal margin and is also tender. There is no free fluid in the abdominal cavity and no distended veins over surface. No tenderness over kidneys or ureters.

There is slight edema of both legs; knee jerks present. On outer aspect of right leg beginning at head of fibula are noted scars of previous ulceration. These are irregular, serpigenous in character, and the skin is fine and white. About the ankle there is a band of ulceration ten cm. wide extending around the entire leg. Lymph nodes in groin and right axilla are enlarged. The epitrochlears are not palpable. Wassermann with water bath showers negative; ice box fixation with alcoholic and cholesterinized antigens both four-plus. Blood pressure systolic 96, diastolic 62.

At the time of admission to hospital Roentgen-ray examination revealed passive congestion of lungs and heart moderately enlarged. Stomach regular in outline, movable and pushed to left. The duodenum not well seen. The mass is not connected with the stomach. It was on account of this mass that the patient was referred to us.

Blood examination hemoglobin, 30%; erythrocytes, 1,680,000; leucocytes, 21,100. Differential: polymorphonuclears, 79; lymphocytes, 17; basophiles, 1; endothelial leucocytes, 3. Marked anisocytosis; moderate poikilocytosis and polychromatophilia. In a count of two hundred cells (nucleated cells) 26% were megaloblasts and 22% homoblasts.

Urinalysis: Color dark reddish-brown; reaction acid; specific gravity, 1015; albumin a trace; sugar negative; occasional granular cast; pus cells (leucocytes), 25 to 30 to the field.

Differential blood count by Dr. Graves showed the following: Polymorphonuclears, 78¾; lymphocytes, 11¼; endothelial leucocytes, 1¼; poikilocytes, ++++; normoblasts, 6; microblasts, ½; marcroblasts, 1½; anisocytosis, ++; polychromatophilia, +.

March 22, 1922, three days after admission, blood examination showed: Hemoglobin, 58%; erythrocytes, 2,064,000; leucocytes, 18,100; differential—polymorphonuclears, 56; lymphocytes, 14.5; endothelial leucocytes, 3.5; normoblasts, 22.5; myeloblasts, 2.5; megaloblasts, 1.0; anisocytosis, ++; poikilocytosis, +; polychromatophilia, +.

We made a diagnosis of hypertrophic cirrhosis of the liver probably luetic in origin with the possibility of a chronic polyserositis also due to syphilis. The latter is characterized by a perihepatitis, perisplenitis and not infrequently pleural changes. The most interesting point in the case is the diagnosis. I have seen syphilis cause marked anemia with hemoglobin between 10% and 11% where the patient improved promptly under antisyphilitic treatment. This patient was given iron citrate one grain and sodium cacodylate ½ grain hypodermatically; she also had digitalein. Her temperature was 99.4° to 100.5° F., and pulse 130 when admitted. Her temperature was normal and pulse 100 when she was dismissed.

Case II.—The second case is somewhat similar in character and for that reason is reported in connection with the foregoing. In this case we made the diagnosis of Banti's disease, bearing in mind, however, the possibility of it being hypertrophic cirrhosis of the liver. When far advanced I do not believe anybody can make a differential diagnosis clinically between those two conditions, and it is questionable whether differentiation can be made pathologically. In late cases it seems impossible clinically to determine definitely whether the spleen is involved primarily and the liver secondarily, or *vice versa*. In Banti's disease, however, the liver is believed to be involved secondarily.

J. C. M., male, aged forty-one, referred to us by Dr. C. C. Hancock, of Jeffersonville, Ind.

Family history: Married, wife and six children living and well. Patient had infantile paralysis at the age of one year; paralysis of right leg still persists. Had typhoid fever eight years ago. He denies venereal infection. He was married at the age of eighteen and said he had "never had sexual intercourse prior to marriage." He has used beer in moderation, but says he has "never been much of a drinker."

Present history: The patient states that he was perfectly well until four years ago when he was struck on the abdomen by a block of wood while working with a circular saw. He had considerable pain following the accident, but there was no nausea or vomiting; no blood noted in the dejecta. Following the accident he did not work for several months.

In November, 1912, about four months before he came under our observation, he began to have trouble and noticed abdominal swelling and shortness of breath. He had pain especially after meals. His appetite was good, but after eating he said he always felt full; that his abdomen became distended and he was extremely uncomfortable. His alvine evacuations were regular. While under treatment during the summer he improved, the abdominal swelling became less, but he complained of being very weak. Within the last two months the swelling has greatly increased and he has become markedly weaker. He tires very easily and is short of breath on exertion. During last winter he had some swelling of his feet; this is still present to a limited extent. No edema of the scrotum has been noted at any time. His appetite is good, but he has discomfort after meals, especially when he eats very much; no nausea or vomiting. He says he "keeps his bowels well open" because if constipated he suffers greatly. His feces are yellow, but have never been "putty" colored nor has he passed any blood from the rectum so far he he knows. He complains of a drawing sensation in left lower abdomen, "feeling as though he were drawing into a knot," and then this will suddenly relax. Such a sensation occurs when he is constipated and also just prior to defecation.

The patient has had a cough for six weeks, and although he says he "has had asthma all his life," it has caused no trouble until now. He is very short of breath and has not slept in bed for four months. There is no pain in his chest. Two nights ago he says he "spat some blood" which was not frothy, and at the same time he had nose bleed. He has suffered from severe headache for the last three or four days. He formerly had palpitation, but has none now. Has had nocturia (two or three times), slight frequency during the day; no dysuria.

Physical examination: Patient is a short man who walks with a decided limp; abdomen markedly enlarged. He is pale, slight jaundice of sclera, some edema of legs. Teeth in fair condition; tonsils slightly enlarged; voice husky; tongue pallid with thin white moist coating; neck negative. The chest shows diffuse rales posteriorly and there is apparently some compression at base of the lungs. The heart is about normal in size with fair musculature; action regular; soft systolic murmur over body of heart. His abdomen is greatly distended and the superficial veins much dilated, especially those along the diaphragm. There is apparently some free fluid in the abdominal cavity. The liver extends from the fourth interspace on the right to six inches below the costal margin. He complains of great tenderness in this locality. The spleen extends from the eighth rib to the umbilicus. A few glands are palpable in either axilla; no enlargement of the epitrochlears, cervical or inguinal nodes.

Blood examination: December 28, 1921; Hemoglobin, 55%; erythrocytes, 3,616,000; leucocytes, 5,777. Differential: polymorphonuclears, 67; lymphocytes, 28; basophiles, 3; eosinophiles, 1; no nucleated red cells were seen. Two months later (February 21, 1922): hemoglobin, 50%; erythrocytes, 3,304,000; leucocytes, 4,311. Differential count not made. Wassermann flat negative with two antigens.

Based on the foregoing findings we concluded this man had splenic anemia or so-called Banti's disease, and on account of the tremendous size of his spleen and the general condition of the patient we deemed the case inoperable.

There may be some question as to correctness of the diagnosis in the second case, but considering the fact that in primary hypertrophic cirrhosis of the liver there is rarely dilated abdominal veins we believe the diagnosis we have made is correct. In portal cirrhosis or the cirrhosis associated with Banti's disease dilated abdominal veins, especially the caput medusae, are commonly observed.

In the first case we believe the patient has primary hypertrophic cirrhosis of the liver, due to syphilis with secondary involvement of the spleen. We advised routine antiluetic treatment with administration of suitable drugs to combat the anemia.

In the second case, which we believe is one of Banti's disease, we advised the Roentgen-ray and radium. It may be well to state that radium has already been used with the result that the spleen has diminished somewhat in size and has become more movable.

In considering the treatment of Banti's disease the best method of which we have any knowledge is splenectomy. In early cases where the spleen is not markedly enlarged and hepatic cirrhosis not great the ultimate results from splenectomy have been good.

In the second case we considered the possibility of familial ictero-anemia which is characterized by increased fragility of the red blood cells. This we tested and found that the fagility of the red cells was normal. Familial ictero-anemia is characterized by secondary anemia, enlarged spleen, jaundice, etc., the disease may be present from birth or may develop later in life. The treatment of this condition is opecrative, namely removing the spleen, and we have seen very good results follow this form of treatment.

DISCUSSION:

Wm. J. Young: In the first case reported I think Dr. Frank is well within his rights in making the diagnosis of lues, inasmuch as the patient has the clinical manifestations of syphilis. She has the thin, cigarette-paper scars, and while she has a water-bath negative, she has an ice-box four-plus Wassermann both with alcohol and cholesterinized antigens. I believe syphilis is the primary cause of the trouble and that the anemia is secondary. We must recognize that anything is possible in syphilis, and that approximately ten per cent of the people in the world are syphilized.

I would like to commend Dr. Frank especially on the fact that he has looked upon both sides of the question in the case reported; that is, he is treating the patient from the standpoint of both syphilis and anemia. Whether the anemia is the primary or secondary factor makes little difference. It must be remembered that in the treatment of syphilis we are not treating the Wassermann reaction, we are treating a human being who has clinical manifestations of the disease. We are always going to treat syphilis according to our best judgment, we are going to treat the clinical manifestations as we think right and proper.

Dr. Frank is to be congratulated upon the methods he has used in the case reported.

John W. Moore: I agree with Dr. Frank that the first case reported is purely medical. In summarizing the case I think we are justified in concluding that there are present a pancarditis with hypertrophy of the heart, passive congestion of the liver, spleen and lung, general anasarca with anemia of the pernicious type, all due to syphilis. Instead of hypertophic cirrhosis of the liver I think the patient presents a clear-cut picture of chronic passive congestion.

In the second case, if we accept the newer theory of the cause of Banti's disease I cannot see any reason to expect benefit from radium treatment. Autopsy findings by Mallory have shown that the primary pathology in Banti's disease is not in the spleen, that the splenic enlargement is secondary to thrombosis of splenic vein. Splenectomy might be the ideal method of treatment in such cases.

John J. Moren: In the first case reported, in addition to syphilis, the fact that the woman worked in a tobacco factory may have had something to do with production of the anemia. I have seen a number of women who worked in tobacco factories present a blood picture similar to that described by Dr. Frank.

L. K. Baldauf: The blood picture in syphilis very frequently simulates the typical blood picture of pernicious anemia; and in many cases of pernicious anemia the blood Wassermann is two-plus. The similarity in blood picture between pernicious anemia and syphilis is so striking that Emerson has maintained that all cases of primary pernicious anemia were syphilitic in origin. He further believes that pernicious anemia is not primary, but represents a secondary anemia of syphilis.

The second case reported by Dr. Frank is especially interesting to me. Many years ago I was fortunate enough to have the opportunity of making an autopsy on a patient who died from Banti's disease, and at that time took occasion to read Banti's original article in Virchow's Archives. He mentions enlargement of the spleen and liver and says something about the urine picture. One of the most interesting things about Banti's disease is the difficulty in making a differential diagnosis between this disease and ordinary cirrhosis of the liver. It is well known that in ordinary cirrhosis of the liver where there is an enormous increase in fibrous tissue there is always an enlarged spleen. In simple alcoholic cirrhosis where there is much increase in fibrous tissue the spleen is always considerably enlarged. The question arises, in the differentiation between Banti's disease and cirrhosis of the liver, which is primary, whether the disease is primarily in the spleen with secondary changes in the liver, or whether it is primarily in the liver with secondary changes in the spleen. The spleen in Banti's disease may reach an enormous size, almost as large as in spleno-myelogenous leukemia, where the spleen is sometimes larger than the liver.

Jaundice may be present either in Banti's diseases or in ordinary cirrhosis of the liver. In ordinary cirrhosis of the liver the spleen is also enlarged. In other words, we have either an enlarged liver with secondary enlargement of the spleen or an enlarged spleen with secondary enlargement of the liver.

I think the pathology in Banti's disease is in the splenic vessels primarily rather than in the spleen vessel itself.

S. G. Dabney: I am not prepared to discuss the cases reported by Dr. Frank in a scientific way. I sometimes wonder whether the gentlemen who follow the specialty we do see as many late syphilitic lesions as men in other lines of practice. I am rather inclined to think we do. Specialists in our line see many evidences in disease of the eye and occasionally of the ear, nose and throat, of late syphilis.

I understood Dr. Frank to say that his first patient had two miscarriages. The history seems to me extremely suggestive of syphilis. The husband had a sore on his penis, whether it was considered a soft chancre or a true Hunterian sore makes little difference, then a few months or years later marries and his wife has two miscarriages. These facts of themselves are extremely suggestive of syphilis. The husband stated that after the appearance of his penile sore he received "some shots," but how many we do not know. Realizing the fact that early syphilitic manifestations may be made to quickly disappear under the newer plans of medication, it is still true that the treatment of syphilis extends over a number of years, and I think there are going to be more late manifestations observed than ever before. While the symptoms may be readily controlled by the newer methods of treatment we have no assurance that the patient is cured. The curse for syphilis is mercury and mercury long continued.

When people come to me with atrophy of the optic nerve, with dilated pupils which do not contract to light, with ulcerations of the pharynx, larynx, sometimes of the nose, I always make it a point to have a frank talk with them and investigate their past history. When asked how long ago it was they had syphilis and how long they were treated, it is astonishing the number who will reply that they had a "touch of syphilis" many years before and took pills for a few weeks or months, visited Hot Springs for a few weeks, etc. I have made the statement on previous occasions and believe it will still hold good that I have never seen a patient who has received three or four years' vigorous intermittent treatment with mercury especially by inunction, who exhibited any of the late lesions of syphilis I have mentioned. I think the exceptions must be very rare. Did not the great Jonathan Hutchinson say that if a man would not marry for three years that he never would beget a syphilitic child? I think the time has not yet arrived, with all of our laboratory work, that we can throw aside the clinical observations of men like Hutchinson and Fournier. For my own part I still have great confidence in the opinions of such men. I am inclined to believe that men do not beget syphilitic children after a period of three years.

I have often seen patients who presented the appearance of extreme anemia and exhaustion due to syphilis. I remember one particularly who was treated by a colleague in my own specialty. The man said he had never had syphilis, but when I looked into his mouth I knew better because no other disease could have produced the typical lesions which were present. He said he had a small sore on his penis six months before he was married. His wife later had one or two miscarriages. His teeth had been extracted because of infection about the gums and vaccine had been prepared from the ulcers and injected at various times. In other words, his word had been accepted that he had never had syphilis. A few days before he came to see me he had consulted a physician who told him he ought to have a Wassermann test made. This suggestion was accepted by the patient, but report had not been received at the time he came to me. I telephoned the man who was making the Wassermann that I knew of nothing that would produce the characteristic lesions in the patient's mouth but syphilis. He had a tertiary ulcer in two or three different places in his mouth and I was confident it was due to syphilis. Even if the man had given no history of a sore on his penis I would still be confident of my diagnosis. He stated that he had just finished the Wassermann which was four-plus. That patient had extreme anemia, he was very weak, he was extremely exhausted. I do not believe such cases are very rare.

Louis Frank: In the first case reported the question arose whether the acetanilid was a factor in production of the symptoms present. We know the administration of drugs of this class in certain individuals may produce marked blood changes, and this question had to be taken into consideration. We also had to consider whether or not some of the symptoms might be due to the cardiac lesion which was present. These things had to be carefully investigated in making the diagnosis.

In the second case we believed the patient had Banti's disease which had passed the time for any good to be accomplished by a surgical operation. The matter was thoroughly explained to the patient and he was permitted to decide for himself as to what should be done. I believe it has been generally conceded that when these patients reach the point where they have fluid in the abdominal cavity that they are practically in the terminal stages of the disease. Therefore, we did not feel like insisting that this man should have a surgical operation. With a spleen as large as this man had and with the disease at this late stage of operation is attended by a rather high mortatlity, and we did not feel like recommending surgery unless we could promise something definite as a result of the operation.

What the ultimate result of Roentgen-ray and radium treatment will be I do not know, but we hope to bring about an increased deposit of fibrous tissue in the involved organs with shrinkage. Certainly this man's spleen has diminished in size and has become more mobile than it was, and we thought the Roentgen-ray might have some good effect.

If I mistake not Mayo attributes Banti's disease to a toxic process beginning in the spleen and extending to the liver, that is, the spleen not being able to take care of the disintegrated red blood cells this toxic material is carried into the liver which is secondarily involved. I am unfamiliar with Mallory's theory, but it is with the idea of eliminating the primary focus of the disease that the spleen is removed.

We have operated upon two patients for Banti's disease. The record of the second case could not be found this evening. While we have not recently traced the post-operative history of the first patient operated upon, we know she was living sometime after the operation.

J. G. Sherrill: In the first case reported by Dr. Frank there was no free fluid in the abdominal cavity and no distended veins. I claim that it is impossible for a diseased cardiac apparatus to produce enlargement of the liver to the extent that was present in this case without also producing enlarged veins on the abdomen and perhaps ascites. There cannot be general anasarca without ascites. I am sure, therefore, Dr. Moore overlooked this part of the report.

Syphilis may cause a great variety of cardiac lesions and also enlargement of the liver through its action on the heart, but there is more apt to be enlargement of the liver through deposition of syphilitic material. In many instances syphilis of the liver does not give a positive Wassermann. Perhaps one patient in three will show a positive Wassermann. Syphilis of the liver will be benefited quicker than any other form of syphilis by the use of mercurial inunctions. Some years ago I reported a case where it was possible to see diminution in size of a syphilitic liver from day to day under the use of mercury by inunction

A point in Dr. Frank's report which interested me particularly was the employment of large amounts of acetanilid externally in dressing the leg ulcers. Such a practice is reprehensible in the extreme. It seems probable that the patient procured this drug without having orders from her physician to do so. While the anemia and other symptoms present may be due to syphilis, the effect of a poisonous drug like acetanilid must be considered. This factor should be eliminated before administering anti-luetic treatment.

Twenty-five years ago I decided that I would never use a powder on wounds again. This plan was adopted and it was found that the wounds healed much better without dusting powders. Many other surgeons came to the same conclusion about that time so I do not claim any priority about the matter.

In the first case reported I believe there is a mixed cause for the anemia, partly due to syphilis, partly due to acetanilid. We know that syphilis will often produce anemia; we also know that mercurials will sometimes have the same effect. Given in the proper quantity a patient with syphilis will improve in every way. In certain other types of syphilis if mercury is pushed the patient has anemia. In Dr. Frank's case the iron preparations are indicated. These may be combined with mercury if thought advisable.

I agree with Dr. Dabney that a man who has had active treatment for three years is not likely to beget syphilitic children. I do not believe there was ever another syphilographer greater than Jonathan Hutchinson. Many of his theories and statements are as true today as when he advanced them many years ago. In my opinion the physician who depends upon arsphenamin alone in the treatment of syphilis will have many recurrences. The sheet anchor in syphilis is still mercury. I have never seen any effect, however, from deep muscular injections of solid mercury. The soluble salt should always be used in proper solution. Solid mercury injected beneath the skin becomes encysted and will be shown in situ by the Roentgen-ray a long time afterward. My belief is that the best way to use mercury in the treatment of syphilis is by inunction.

L. W. Frank (closing): In attempting to exclude acetanilid poisoning in the first case I did not resort to one test, i. e., the spectroscopic examination for metahemoglobin. It is well known that acetanilid causes destruction of the red cells by disintegration and the formation of metahemoglobin just the same as carbon monoxide poisoning does. The patient had suffered with ulcers on her leg for several years, and while we did not definitely exclude acetanilid as the cause of her trouble, yet having seen syphilis cause marked anemia and other symptoms exhibited, it was considered that the acetanilid played a very small part. There is no question, however, that there was some absorption of the drug which was applied directly to the wound. The physician who referred the patient to us was not at fault because he had not treated the leg ulcers. Some one else had given the patient powder (acetanilid) for external application. She found that this powder lessened the pain and, of course, continued its application, using the amounts stated in my report. We know that in the majority of instances where patients develop argyria prescriptions have been repeatedly refilled without the knowledge and consent of the attending physician.

I must disagree with the statement made by Dr. Sherrill that there cannot be a markedly enlarged liver without general anasarca and ascites. This woman had slight general edema, but there was no demonstrable fluid in the abdominal cavity and there was very little edema of the legs.

I have seen a number of patients with heart lesions who had marked enlargement of the liver. In so-called heart failure the first changes are noted in the liver, but a spleen of the size mentioned in my report is rare from a heart lesion alone. When the patient was first examined it appeared clinically as if the trouble might be due to the cardiac lesion, but when the blood picture was carefully studied and the patient was more thoroughly examined I looked upon the case as probably one of hypertrophic cirrhosis or polyserositis. The symptoms referable to the left side of the chest must not be overlooked. The patient has marked enlargement of both spleen and liver and she unquestionably has syphilis. We know that syphilis may cause anemia and also enlargement of the liver and spleen from the deposition of syphilitic material. She has been given anti-luetic treatment with proper medication to combat the anemia present. Some improvement in her condition has been noted.

In considering the possibility of injury causing Banti's disease, it is stated that in many cases a history of previous abdominal injury is obtained. Whether injury actually has anything to do with production of the disease we do not know. The exact pathology of Banti's disease I do not pretend to know except that apparently it is located in the spleen. The first effect is hypertrophy and proliferation of the lymphoid elements and reticulum, especially of the malpighian bodies followed later by fibrosis.

The liver becomes secondarily involved, that is, toxic products are thought to be carried from the spleen through the portal circulation to the liver and anemia supervenes. The object of splenectomy is to get rid of the organ responsible for the toxic material, thus avoiding the secondary effect upon the liver. It would appear, therefore, that splenectomy is the most rational treatment of Banti's disease.

Our reason for treating the patient with radium was that Moynihan and other authorities have stated that the Roentgen-ray and radium have been used in the treatment of Banti's disease with beneficial results. After thorough investigation it was decided that the disease had reached a stage where surgical operation was inadvisable. Had the patient been seen in the earlier stages of the disease, that is, before the development of ascites, marked evidence of hepatic cirrhosis, enlarged abdominal veins, etc., operation would have been advised. The mortality of late operation in Banti's disease is high and under the circumstances we thought best to try the Roentgen-ray and radium rather than subject the man to a surgical operation with little prospect of permanent benefit. In early cases there is no method of treatment which promises better results than splenectomy.

PUERPURAL INFECTION*

By D. H. Kash, Jackson.

In the selection of this subject Dr. Robinson gave me three subjects to select from, I made a choice of this one. I am proud to say that I have only treated a limited number of cases for I think it's due in a great measure to the careless handling the case during the labor. Sepsis, or rather puerpural sepsis, is due to putrefactive matter absorbed from the parturient canal. This infection may be caused by various kinds of bacteria; there is no special one. Streptococci and staphlycocci being the most dangerous.

Clinically we distinguish two forms of septicaemia: first, sapremia septic or putrid intoxication, and, second, septic infection, true or progressive septicemia. In sapremia the organism or bacteria feeds on retained blood clots. In this case the circulation takes up this toxin made by them, while in septicemia the bacteria makes its place of battle on the space where the placenta has been removed and there gains entrance through the large venous spaces and starts their active work. In this latter case both toxins and bacteria are absorbed or enter the blood channels and the bacteria multiply in the blood. In deliveries where forceps are used in nearly every instance we have more or less destruction to the soft parts. In tears of small degree, I very seldom repair for nature corrects the abrasion with less danger to infection.

Symptom: If drainage is free the symptoms are not very marked. As a rule the cases I have had the discharge checked or fully stopped about the third day and a history of a chill, together with painful urination and more or less tenderness all over the pelvic viscera, swelling and tenderness in vaginal tract. Generally the patient has an uneasy appearance, high pulse and an offensive odor about the bed or dressings. The pulse usually ranges from 100 to 120, the temperature 102 to 104. As the case progresses the patient usually becomes delirious at times, or this has been my experience. Very often I am called to see a patient or third or fourth day that gives most of the above symptoms, that subside in 24 or 36 hours. A round of calomel and quinine usually corrects the trouble. I find these symptoms due to mastitis or rather a failure of flow of milk from the breast. In this case the lochial flow has stopped and returns with a starting up of the milk. There are very few cases of puerpural sepsis without having associated with it an endometritis including the cervix, in fact, as a rule all the channels that extend to and from the womb are affected. There is a retarded involution in most cases and this favors the involvement of the tubes and ovaries. As a rule there is some distention and tenderness over the abdomen.

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*Read before the Kentucky Valley Medical Society.

The lochial discharge has a caustic and infective nature and soon the wounds about the vulva are covered with a diphtheroid exudate, forming puerpural ulcers. Diagnosis is easily made out by inspection of the vulva. If we have signs of infection here, we are sure the same signs are further up. The presence of puerpural ulcers early is usually a very grave symptom. The infectious discharge usually causes superficial necrosis. As the disease improves, if it does, these local symptoms disappear.

Treatment with my first case in 1907 in consultation the prognosis was pronounced very grave by the old physician in charge. He also discharged himself and refused to make other calls thinking it was fatal.

My first treatment consisted in curetting the womb with dull curett and gave douche once or twice daily with permanganate of potash 1 to 4,000 solution. I was only called about the tenth day after sepsis was well developed. Being my first case of this kind, I staid with the patient the greater portion of the time for five or six days. I gave at that time a douche with a rinsing curett high up in the uterus. This was done with lots of discomfort to the patient. At that time I was centering my treatment entirely to the womb when possibly there was not a piece of placenta left nor a blood clot, only was dealing with a raw surface. From where the placenta had been separated, of course, in connection with the above. I gave usual drugs of calomel with whisky, strychnine and phenacetin, as good luck this patient′ recovered. At present I don't adhere to this treatment except in part. I do use phenacetin as an antipyretic. I also use whisky and strychnia when needed. At present my treatment points towards the general up-building of the patient more than the local treatment. In most of my cases I have low vaginal douche of normal saline, given only for the purpose of cleanliness and preventing odor as much as possible. I think this is of some benefit to the patient. The fever should be controlled by sponging with water and alcohol rubs. As I have previously stated, I use phenacetin to assist in controlling fever and for pain. If there is any disease that prophylaxis or prevention is of benefit and, of course, there is it is puerpural sepsis and that is by care during labor by every precaution of which none of us adhere close enough to the caution of hand and nail cleansing, the bath of patient before labor, the evacuation of bowels and emptying the bladder, and especially the bladder, to prevent damage to same. I have treated more septic conditions following miscarriages than that of full term labors.

TALMA'S OPERATION FOR CIRRHOSIS OF LIVER—SPLANCHNIC ANESTHESIA.*

By M. Casper, Louisville.

G. B. M., retired grocer, aged 55, normal weight 185, present weight 167. Family history negative. Previous health good, except he thinks he had typhoid fever thirty-five or forty years ago (probably malaria). Had Neisserian infection when young but no syphilis. Moderate user of alcohol, kept saloon one year as part of business. Has organic valvular lesion of heart (double murmur). Chief complaint edema and ascitis, requiring tapping every two weeks when five to six gallons of fluid is removed. Had twenty-seven such tappings altogether when first seen. Over 1,100 lbs. of fluid removed. He has had a slight umbilical hernia. Urine normal except many leucocytes and epithelium.

Examination shows anemia, cachexia, emaciation. Blood pressure 210 and 120. Wassermann negative. Has bad teeth and oral sepsis.

Operation refused when patient first presented himself for surgical relief, because of his being such a poor surgical risk. A month later we decided to operate and see what could be done.

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*Read before the Jefferson County Medical Society.

OPERATION.

Patient was given a preliminary injection of morphine and atropin. After being brought to the operating room splanchnic anesthesia was administered according to technique of Kappis, Labat and others, viz.: "The patient is placed on his side with back bent forward. The needle (12 cm.) is inserted at a point about 7 c. m. from the median line of the vertebral column below the lower border of the twelfth rib and above the transverse process of the second lumbar vertebra. The needle is inserted vertically at first and then turned toward the body of the vertebra at an angle of about forty-five degrees, so that the point of the needle passes the vertebra at its anterior convexity back of the splanchnic nerves. About one ounce of 1% novocaine with adrenalin solution 10 m. was injected thus into the retroperitoneal space and the same procedure carried out on the other side.

The patient was then arranged on operating table and regular technique of celiotomy under local anesthesia carried out. Liver found hard, white and contracted, mostly interlobular connective tissue. Roughing of convex surface of liver, which was done with scapel, scissors and rough towels produced pain, but other parts of abdomen seemed well anesthetized. Probably the rough tactics necessary in this operation caused it, but patient could not stand this and handling under surface of diaphragm without some ether. Omentum was extensively attached to the wall and could be manipulated without pain. A piece of omentum was rolled into a cylinder and inserted or rather projected through peritoneum low down with the hopes of its draining fluid into the cellular tissues to be absorbed. This modification is our own and we are watching its results. Patient made an uninterrupted recovery and still continues to improve and is here for the society to judge results.

He has been tapped since operation, in June, October and February, about four gallons of fluid being withdrawn each time. Patient now is under the care of his family physician Dr. Connolly. His heart and general condition require that he should have constant medical supervision.

DISCUSSION:

Oscar Bloch: The case reported by Dr. Casper is certainly interesting and merits some discussion. I want to congratulate both the patient and the operator on the results which have been obtained. I have tried the Talma operation, but have not been able to secure as favorable results as shown by Dr. Casper in this case. I found the operation unsatisfactory in a measure, because the constant bathing of the wound with the escaping fluid made suture difficult and healing was delayed. I am sorry that I cannot report any results so successful and satisfactory as obtained by Dr. Casper.

E. R. Palmer: In closing I wish Dr. Casper would tell us something about the theory of the Talma operation, i. e., what it is supposed to accomplish. My impression is that it is something akin to the operation of kidney decapsulation in its mechanism, but I would like to have the matter more fully explained.

John K. Freeman: Dr. Casper has shown us a most interesting case and the operation he performed is unusual. I would like to ask him if he does not believe the diet and hospital training the patient received had something to do with his improvement. I do not wish to decry the operation which Dr. Casper performed, as it has been of benefit to the patient, but his sojourn in the hospital with regulation of diet, etc., may account in part at least for the improvement shown.

M. Casper (closing): In answer to Dr. Freeman: This patient has not been restricted in his diet, he has been permitted to eat anything and everything he wanted. His blood pressure has been reduced from 210 systolic to 190, the diastolic remaining about the same, viz., 120. I do not see how the hospital training could have modified his condition in any way, in fact he seems to be improving more rapidly now than he did immediately after the operation.

The theory of the operation is to try and get the portal blood stream to enter the systemic circulation without going through the liver. It is hoped that by securing adhesions between the omentum and liver and wall of abdomen new blood vessels will be formed and the circulation carried thus in a round about way and there is produced a greater area for absorption.

My idea in rolling a piece of omentum into a cylinder and projecting it through the peritoneum at a dependent point was to see if we could not get drainage of the fluid and absorption in the cellular tissue. I do not know whether this drain will functionate or whether the omentum will become absorbed.

The most important feature in the case is that the patient is greatly improved, he says he feels well and is about ready to return to work.

Diphtheria in New-Born Infant.—The Schick reaction had been negative in the infant but twelve days later it developed diphtheria with multiple localizations, two days after another infant with what proved to be diphtheria had been kept in a cubicle at the end of the ward for a day.

MOUTH SEPSIS AS RELATED TO SYSTEMIC DISEASE.*

O. W. BROWN, Falmouth.

This subject, like appendicitis, influenza, pneumonia and a few other diseases, has been the subject of much discussion of late, but do we really know all about it after all this furor and thrashing out? It is the opinion of the writer that we are yet far from the goal and doing many unscientific operations, offering emphatic remedies and suggestions to the public in many instances where we are at loss to explain some of the vague pains and aches that our patients come to us with. The object of this brief paper is not criticism directed toward any of our noble profession, but simply to remind you (and self included) that we are prone to become faddists or over zealous in certain lines of work and not be able to find anything outside of our own domain or specialty, whatever that may be.

The nose and throat man when confronted with a patient who does not give any definite symptoms will naturally look over his field and many times locate and eradicate the symptoms. But not always, nor does he alway use conservatism. Some, I am sorry to say, will advise removal of tonsils or some other operative procedure, and "tell the patient they think they will get well when they know they will not." This type, however, or this operating for a fee, I believe to be few in our profession.

We must all admit that it is a so-called craze at the present time among medical men regarding the removal of teeth and tonsils.

It is a serious thing to yank out the teeth in a patient up in years, for nine times out of ten they can never wear false teeth with any comfort or satisfaction, and if the removal of these teeth does not give them renewed health they will not fail to remember you in their prayers against the devil and his angels as long as they live.

But the real problem in this question is to find out if possible why some patients with a mouth full of nasty, filthy, decayed teeth and gums that are live with pus-bearing micro-organisms have no symptoms and others with one or two no half so bad will have systemic derangement?

Simply because you look in the mouth and find bad condition of the teeth, gums or tonsils does not warrant the assertion that they have systemic infection from what you see.

There may be and is many localities adjacent to the mouth and nose that may be the seat of infection and systemic symptoms.

It is a self-evident fact that a large majority of persons are immune to focal infections, for we see quite a large per cent of persons in this county with teeth and gums that are rotten and yet they seem to enjoy good health.

Some may say "that it will do no harm if it doesn't do any good to remove the teeth and tonsils." But here comes a patient that really needs a mouth cleaning and says "that so and so had the same thing done and is no better." So you must draw on all your persuasive powers to get the work done in the patient that is in real need of it.

Here I want to mention the case of a woman who is a confirmed neurasthenic who while on a visit to a distant town was told by her sister to go and see her sister's doctor, who happened to be a nose and throat man. This doctor "told her that he was satisfied that he could relieve her by doing a resection of the septum." This he did for fifty dollars just before she returned home. But, of course, without benefit to the patient, only to the doctor. He may have been conscientious in his statement to her, but I doubt it very much.

But aside from all the mistakes or harm that we may be doing in some instances, we yet have much to our credit on the balance of real scientific knowledge and treatment directed toward oral hygiene. The mouth we may say is the gateway or inlet to all the organs of the body, and I believe the cleaner we keep this gateway the cleaner will be the rest of the body.

I will not attempt to take up in detail how or why oral sepsis may cause systemic infection, but we may as readily know why pus in one part of the body will cause bodily discomfort in another. So the tonsils, teeth and nasal accessory sinuses by harboring pathogenic bacteria may cause anything from toothache to a general peritonitis.

We see a patient with an infection of finger. Sometimes within a few hours from the inception, or beginning of the symptoms the pus producing bacteria are carried by lymphatics to the axillary glands or perhaps three or four joints between the finger and axillary glands there will be pain, sweating and redness and an abscess formed.

Just so with our mastication of food causing pus to be worked out from around alveolar processes and swallowed with our food. Also a large bolus of food pressing against a tonsil whose crypts contain pus. This must and is taken into the stomach and it would seem that it is only the mercy of the

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*Read before the Pendleton County Medical Society.

Lord that permits any of us to live as long as we do (who have these conditions).

I am not a dentist, but would like to know why the lower animals have sound teeth and are not troubled with the many derangements that the human family are?

We know that the act of chewing certain kinds of foods has a tendency to clean the teeth and gums and perhaps this is one reason.

We now know that infected gums and tonsils may cause so-called rheumatism and that rheumatism causes many cases of endocarditis and nephritis. But we may just as well say "that tonsilitis is the primary and sole cause of all of these conditions in many instances."

We would be surprised if we would take the time and trouble in many cases of acute tonsilitis to examine the urine and find an abundance of albumin.

We have an acute nephritis with this condition more frequently than we might imagine. The aches and pains are legion that may have for their cause an old smoldering infection in or around the mouth, and the time I believe is yet far in the distance when we may cause the public to realize that they must visit their doctor and dentist at regular intervals to insure them that their mouth's are not the source of danger to their general physical conditions.

So many put off from day to day, week by week, and year by year from going to the doctor or dentist, and by the time we see them they have some chronic disease so firmly grounded that there is very little we can do except to impress upon them that they have signed away their days of grace, and that something could have been done had they called in time. When the public drinking cup was abolished a few years ago a long and strong step was made toward the eradication of mouth borne diseases.

When we think of the hundreds of tourists and persons seeking health resorts who were many of them suffering from tuberculosis, and many others whose mouths were alive with pus producing bacteria, and drinking from the same utensils that were used by the public at large on trains, boats, railroad stations, churches and schools the wonder is that so many escaped general systemic infection.

The tooth brush I believe may become as filthy as some of the teeth that it is supposed to clean.

It is a common observance that most persons never sterilize their brushes and you will find them in all sorts of places, exposed to dust, flies and other sources of contamination. They may become as test tubes, or a very fertile field for the growth and multiplication of pathogenic bacteria.

If these microbes were as large as flies or bumble bees, and we could see them crawling on our food we would be horrified. But because we can't see them we pass them up lightly, and when one of the victims who has been so unfortunate as to surrender all to these armies of destruction who has made the last sacrifice, who was in the bloom of youth and who should be living according to all the laws of nature. Then it is that we are told "that the Lord giveth and the Lord taketh away."

In the past we have said that "all this must be for some purpose."

Now we know better. We know that most of our communicable diseases are preventable, and that most of our young people that succumb to these maladies should have been saved.

We know also that it's up to the doctors and health boards to do it, too.

Some of the mist that has been before our eyes for years has been raised and the sun peeping through, but there is yet in this locality much that should and will be done within the next few years. These last suggestions may seem a little far fetched, or not in line with the subject, but yet they deal with disease, and that's what we are fighting.

Statistics for mortality rate among all ages is now said to be higher in rural communities than in the large cities, and it is no doubt due to the ignorance and neglect of conditions of the mouth that could have been remedied by the doctor or dentist had these patients had treatment before some of the vital organs were beyond redemption due to a chronic absorption from some point of infection. Only recently I was called to see a child five months old who was having convulsions. This baby's parents fairly robust in apperance, but both were the subjects of a severe pyorrhea and both had many decayed teeth. The baby was well developed for this age and was bottle fed. It was rather over weight, but seemed to have a very pale placid skin and protuberant abdomen. Most of the sutures of the skull were yet open and the anterior fontanel was very large. Both pupils were widely dilated and did not react to light. There was marked rigidity of the whole body, but more especially the posterior neck muscles. There was no fever and pulse rather slow for this age. No diarrhea, constipation or tympany of bowels. Reflexes exaggerated except pupils. The child continued to have convulsions about every fifteen or twenty minutes apart for six hours from time

I first saw it and died. Meningitis, I believe, being the cause. I found out from the parents that they were in the habit of chewing fat meat and feeding it to the baby. Also the grandmother, who also had a filthy set of teeth and gums prepared the meat in the same way for the baby when the parents were out.

I am not able to say that this filthy, repulsive practice was the cause of this baby's death, but it could have been. So here is only one among hundreds of deaths that occur yearly in this state that might have been saved by a little warning handed out to the public by the medical men and health boards.

A cavity of a tooth, an alveolar process or a crypt of a tonsil can and does constitute what we migth term a living test tube many times. A hotbed when any and all sorts of pathogenic bacteria grow and multiply with diastrous results to the host too often. Somehow, somewhere and at some time we pay the penalty for every law of hygiene that has been transgressed, and I believe that a clean mouth, clean food, clean water, clean body and mind will add materially to the longevity for which most of us achieve.

MALIGNANT CONDITIONS OF THE FACE AND NECK.*

By Chas. K. Beck, Louisville.

Lesions both benign and malignant differ to some extent in different regions. While there are points of similarity in the diagnosis and management of malignant disease no matter where found, each region presents special problems which demand special attention, hence this regional study.

While there are some marked differences in the two regions considered in this paper, in malignant disease it is often practically impossible to disassociate them. It is true that most primary and some metastatic malignancies of the neck never involve the face, but in many instances malignant disease of the face metastasizes to the neck first; and in the diagnosis and management as well as in the prognosis the condition of the neck is of prime importance. I have therefore thought it wise to consider the two regions together.

There are so many types of malignant disease which may arise in these two regions that it is impossibble to undertake an exhaustive study of any one or to even consider in detail some of the rare ones. This paper will therefore deal briefly with the more common forms.

It is not my purpose to present statistics as to the precentage of occurrence of any one lesion. I simply desire to call attention to a problem the solution of which we have to study more frequently than formerly. This problem is yet only partially solved, but we should be encouraged by the fact that it is partially solved. It has been only a few months since we listened to a paper read by Dr. W. J. Young before this society concerning some of these lesions which he had treated successfully, and examined the patients he presented. Many of us remember how futilely we treated these same lesions just a few years ago—how we floundered from some caustic paste to the knife, then to the cautery, then back again. Now, while we are not always successful, epithelioma of the face and neck represents a problem that is mostly solved. We are successful also in many other malignant lesions when there has not been too much metastasis or too great extension. But let us not become too optimistic, because we are far from the final solution. It is, if possible, to take another step in that direction that this paper is presented for discussion. Not that I have anything new or startling to offer, for I haven't, but a few points may be emphasized which may help us to the solution of some special problem.

I have thought best not to consider the cause of malignancy, as so little is really known about it. Some day we will probably emerge from the fog of ignorance into the clear sunlight of perfect knowledge.

In making a diagnosis of malignant disease anywhere I consider it unwise to remove a portion of the tumor for examination with the intention of doing a radical operation later if found malignant. In my opinion even the use of cautery to remove a portion of the tumor is fraught with the danger of producing metastases through the opened lymph spaces or blood channels. I believe it justifiable when in doubt to remove a tumor in toto for frozen section in the operating room and govern the radicalness of the operation by the report received, but I do not consider it ever justifiable to remove a portion of a possibly malignant tumor for diagnosis.

The diagnosis may often be made clinically. It is not always necessary to use the microscope. But is not always possible to make a "hard and fast diagnosis" even with the microscope.

Epithelioma is probably the most frequently seen of all the malignant lesions of the face and neck. It occurs most often on the upper half of the face. It is mildly malignant as a rule. There is little tendency toward metastasis, but it does tend to recur. For that reason operation alone unless performed very early has usually proven unsuccessful from the standpont of permanent cure no matter what the method employed. Caustics, curette, cautery, knife, all have usually failed when used alone, but radical curettage and cauterization followed by proper x-ray treatment usually gives the desired result. There is danger, however, in insufficient x-ray treatment and lack of observation following what may appear to be a complete cure. The patient should be kept under observation for many months and further treatments given with x-ray if there is any suspicion of recurrence or lack of complete cure. Even this line of treatment is limited. For that reason it is well to make a guarded prognosis. Where there has been invasion of the underlying bone treatment is usually unsuccessful.

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*Read before the Jefferson County Medical Society.

Epithelioma and, in fact, any other malignant tumor of the lip should be radically removed surgically. I am following the routine of having a dose of x-ray administered in all cases of malignant or suspected malignant disease of the face and neck just prior to operation. Then after the surgery, which is always as thorough and radical as conditions will permit, a course of x-ray treatment is enjoined. In lip operations care should be taken to remove all lymphatic structures in the submaxillary region whether they appear enlarged nor not, and these structures should be removed first. Just to satisfy myself that I have gone far enough I usually send two specimens to the laboratory. One consists of the most distant glands which are removed first, and the other of the tumor and proximal glands. I follow this method of laboratory diagnosis in all my surgery for malignancy no matter where found.

Carcinomatous lymphatic glands occur in the neck frequently as a result of metastasis from some abdominal organ. These metastases are on the left side of the neck and occur by way of the lymphatic duct. Primary carcinomata occur in all of the epithelial lined organs of the neck and head.

Carcinoma of the branchial cleft is one of the commonest primary malignant tumors of the neck. It is an epithelioma of embryological origin developing in later life. It is fortunately not very malignant, invades slowly, and although it may attain a large size does not usually recur if radically removed.

Sarcoma may appear in these regions as a single primary pigmented or non-pigmented tumor of the skin, or secondarily as a metastasis. It occurs also as a primary tumor of salivary and lymphatic glands, or may arise in these by metastasis. Sarcoma of the jaw is frequently seen and is sometimes melanotic. Sarcoma may occur near the orbit originating from the choroid. In the case I report herewith the primary tumor was near the inner canthus of the left eye, but there is some question as to whether this was a sarcoma.

The treatment of sarcoma is not often satisfactory. The removal of all pigmented moles and warts before malignant change occurs certainly reduces the incidence of sarcoma. Surgery is the best we have to offer. Radical surgery, preceded and followed by x-ray as in epithelial growths, is sometimes completely successful and often prolongs life, but it occasionally seems to hasten the process. Elevated, soft, nodular tumors, with overhanging edges and a more or less ulcerated surface showing no tendency to deeply invade underlying tissues, do not tend to recur after removal. But another type more rapid in growth, softer and bleeding more easily does tend to invade deeper structures and to metastasize early and are therefore unfavorable. Melanotic sarcomata frequently arise from pigmented moles and are the most malignant of all.

It is often difficult, and sometimes almost if not quite impossible, to arrive at a differential diagnosis between sarcoma of the lymph nodes and Hodgkin's disease. In fact, there is some doubt as to whether there really is any difference. Sarcoma is supposed, however, to arise from a single focus in one gland and invade other adjacent organs instead of extending first to all parts of the lymphatic system. But whatever the diagnosis and the clinical pathology, the prognosis and treatment are the same.

Treatment must vary with the clinical symptoms present. In my opinion if the patient is seen at a time when there is hope of removing all glands involved this should be done without delay. If the involvement is high in the neck with no glands involved at the root of the neck, or in either axilla or groin, complete removal should be attempted after first giving an x-ray treatment. If, on the other hand, there is no hope of being able to get beyond the metastasis so far as clinically shown, an operation in my opinion is not justifiable. X-ray treatments should be given and persisted in whether or not operation is done.

We who are surgeons must acknowledge, and we are glad to do so since malignancy is not usually cured completely by surgical invention, that this is a field where our friends who are specialists with the x-ray outshine us; for the results of x-ray in the treatment of Hodgkin's disease or lymphosarcoma or lymphoma have been marvelous. Still cures have been far from 100%, but prior to the use of x-ray in the treatment of these conditions the mortality was practically 100%. Since x-ray is so often successful the question naturally arises, "Why do surgery at all?" In the cases which are amenable to surgery, or to surgery and x-ray combined, there is some doubt as to the diagnosis until microscopic examination has been made. If any surgery is done it should be radical. I consider it a mistake to remove a gland for diagnosis; while about it do a complete job. The lesion might be tubercular or carcinomatous, and in either event radical operation might prove curative. So "get it all" at the first and only sitting if possible. If the axilla or groin is involved there is no doubt of the diagnosis and operation is not indicated.

If operation is decided upon begin at the root of the neck and remove every lymphatic structure from below upward, saving the lower glands as a separate specimen for examination.

Case report: Date of operation Dec. 3, 1920. The patient, whom I will present directly is a man who was at that time 64 years old. In June, 1920, six months prior to operation, he discovered a small tumor near the inner canthus of the left eye. It was just beneath the skin and below the conjunctiva of the lower lid. It grew rapidly. In a short time he noticed enlargement of the lymphatic gland on the buccinator muscle and a little later the parotid and submaxillary glands. There was little or no pain. When I first saw him on Dec. 2, 1920, the primary tumor was the size of a guinea egg, the one over the buccinator the size of a goose egg, and the submaxillary smaller. Only one or two could be felt below the submaxillary triangle. All were freely movable and the skin or mucous membrane was adherent to none except the mucous membrane of the mouth to the large tumor in the cheek and the lower conjunctiva to the primary one.

I had an x-ray treatment given on Dec. 2, and sent the patient to the hospital for operation the following day. My first incision extended from the mastoid to the sterno-cavicular articulation along the sterno-mastoid muscle. I began at the sternum and removed every lymphatic gland I could find with the fat to above the bifurcation of the carotid. This was my first specimen. All glands in this specimen appeared normal and Dr. Stuart Graves, who did the laboratory work in the case, reported them normal. I continued the process upward, removing all the lymphatic glands I could find and the fat from the left side of the neck. The posterior triangles were not entered. A second incision was now made along the lower border of the jaw. Through this the large tumor in the cheek was delivered, together with a smaller one in the same locality. Several rather large ones were removed from the parotid region, but the parotid seemed uninvolved and was not disturbed. An incision was next made about a half inch below the palpebral border of the lower lid of the left eye and parallel thereto. It was found that the inferior rectus was deeply imbedded in the primary tumor. It was therefore necessary to sever the same. I did not attempt to repair it then because the patient had been under the anesthetic for some time and was not doing as well as I would have liked. Also the conjunctiva had been partly removed and I therefore considered it best to do a second operation in a few weeks.

Notwithstanding the fact that I repeatedly urged a second operation to correct the eye condition, I did not succeed in securing it until nine months after the first operation. The inferior rectus was very much atrophied, and another operation was later found necessary. Dr. J. H. Hester did these two operations and in the discussion will probably go a little more into detail on this phase of the case.

In ten days the patient left the hospital and reported to Dr. W. J. Young who gave the x-ray treatments.

DICUSSION:

M. Casper: I do not pretend to know very much about Hodgkin's disease. The case reported by Dr. Beck is exceedingly interesting, but I do not know whether it is one of Hodgkin's disease or not. I have seen several similar cases, have removed a few of the glands, and have treated the patients with the Roentgen-ray. My only idea about Hodgkin's disease is that the patients all die. My observation has been that the mortality rate is one hundred per cent. I would not consider any case of the character reported by Dr. Beck thoroughly diagnosed without a Wassermann reaction no matter whether the patient has any history of syphilis or not. We know that in many cases a positive Wassermann has been noted without any history of syphilis. A peculiar feature in this case is that it involves the lachrymal duct and other tissues about the eye.

I would like very much to hear what Dr. Graves has to say about the case reported.

Stuart Graves: I remember that Dr. Beck telephoned me about the specimens in the case he has reported. Several sections were made and carefully studied. It is my recollection that the sections showed a lympho-blastic tumor. I am not prepared to say whether it is Hodgkin's disease or not, because there is so much discussion as to what really constitutes Hodgkin's disease. There is a clinical condition characterized by enlargement of the lymph nodes, usually localized, which grow slowly and are associated with progressive weakness, anemia and loss of weight. These are sometimes called Hodgkin's disease. The glands show marked enlargement, there are remissions and exacerbations, the patients at times show considerable improvement, especially under X-ray treatment or after surgical removal at the most marked local focus. But in all cases of neoplastic hyperplasia, or true Hodgkin's disease, associated with anemia and progressive weakness, the ultimate result is a fatal termination. I have watched a number of cases, and while the disease may be prolonged over a period of several years, the ultimate outcome is generalized involvement of the lymph nodes and death.

I may be mistaken in my pathological diagnosis in this case, but do not believe so. I classed the tumor as a true lymphoblastoma. It is impossible to come to any conclusion within a year and a half after the first clinical symptoms have been noted. We are only warranted at this time in making suggestions because a sufficient period has not elapsed to see what will be the ultimate outcome of the case. I should be glad if Dr. Beck would make a further report on the case two or three years from now.

It may be interesting, in this connection, that Dr. Pfingst sent me about a year and a half ago a lachrymal gland for examination. It seemed fairly well encapsulated and composed of small round cells with very little stroma. There is an occasional mitotic figure. I had never seen such a tumor before and did not make a positive diagnosis, but said that if it was not a lymphoblastoma I did not know what it was. I sent a section of it to Dr. Mallory who confirmed the diagnosis. The patient seemed to make a perfect recovery after the operation, but he should be kept under observation as there may be a recurrence some time in the future.

J. H. Hester: Dr. Beck has read a most interesting paper. Of course, it is more interesting from a surgical standpoint than from the standpoint of the eye specialist. I was asked to see the patient mentioned by Dr. Beck in regard to the condition of his eye. Examination disclosed that the inferior rectus muscle had been severed near its attachment, so in attempting to bring the eye downward there was no muscular tissue to which it could be fastened. However, I did my best to fasten it to the tissue below and thus get the eye in better position. The eye was turned so far upward that the pupil could scarcely be seen. Inspection now shows that we succeeded in obtaining a very favorable result, but it is not as good as it would have been had there been more muscular tissue left.

Another operation which might have been done and would have probably been successful in transplantation of a portion of the external and internal recti muscles. In cases of this kind such an operation is usually satisfactoy povided not too much of either muscle is transplanted.

The case reported is very interesting and I think Dr. Beck is to be congratulated on the result he has secured. However, as Dr. Graves has said, it remains to be seen whether or not there will be any further trouble.

D. Y. Keith: In my opinion the patient before us has not Hodgkin's diseases. I suppose everyone who has done a considerable amount of x-ray work or work along surgical lines has seen a number of cases of Hodgkin's disease, particularly cases where only the lymphoid tissue was involved, which have responded very readily to the Roentgen-ray. Dr. O. Bloch will recall a boy we saw two weeks ago with several enlarged lymph nodes. He was given one x-ray treatment and the glands are now reduced to half their original size. I merely mention this to show how rapidly these glandular enlargements melt away under x-ray therapy. The time of treatment was 2½ hours.

Freedom from recurrence for two or three months is no test for malignancy, or Hodgkin's disease either for that matter. We have a large number of cases that we believe were true Hodgkin's disease that have gone over a period of three years without recurrence; several have died of Hodgkin's disease; but the most of our patients with this disease have lived eighteen months or two years. We have any number of cases that have gone a year or longer without any surgery whatever and without any glandular enlargement present, the patients being perfectly well although they had marked anemia to begin with.

We have had several cases of sarcoma, three of which were reported in the last issue of the American X-Ray Journal, and the patients have remained free from recurrence. One of these patients, a woman, had been operated upon three times with recurrence of the growth within three to nine months. She has now gone five and a half years and is clinically well at least so far as the tumor is concerned, but she returns to us occasionally for observation. She had in December, 1920, a left-sided hemiplegia from which she promptly recovered. We have many cases of sarcoma where the patients have remained free from recurrences for a year or longer.

In the case reported Dr. Beck did not state the technic of the x-ray treatments that were given. Unquestionably if the man was going to have a recurrence the x-ray would hold that in check for a time at least. In my judgment the man would have had a better looking eye and perhaps a more favorable result if he had not been subjected to surgery and the x-ray only used. We have seen many cases of this kind improve under the x-ray and remain clinically well for periods of months or years.

I do not believe any of us who are doing very much work with sarcoma and Hodgkin's disease particularly, because we see more Hodgkin's disease than we do sarcoma, are going to report any curse unless the patients remain free from recurrences six or seven years. I do not recall having seen any that have lived that long. I have never seen a case of Hodgkin's disease, even desperate cases where the hemoglobin was as low as 40%, that did not respond promptly to x-ray treatment properly applied. The patients improve rapidly and believe they are well. I recall one woman in particular who insists that she is perfectly well. She has true Hodgkin's disease and was treated with x-ray. She now has only one enlarged gland the size of an olive. Of course, we know she is not well and should be kept under observation. Sooner or later she will have a recurrence.

So far as radiation is concerned: Whether better results will be obtained by the new x-ray machines with 200,000 to 250,000 volts, with greater distance from the tube to the patient, with greater length of exposures, etc, remains to be seen. Whether a fourteen inch spark gap will make any difference in the effect on tumors has not yet been determined. Whether the element of time in exposure or the high voltage will increase the effect of the x-ray or produce better results we do not yet know.

So far as epithelioma on the face is concerned: For a number of years we used the x-ray alone. A great many of the cases are cured, some are not, and others are held in abeyance. For the last two years we have been using in the greater number of our cases of epitheliomata of the face, cheek, etc., radium applications and the majority of them have yielded promptly to this method of treatment. Whether they will remain clinically cured longer than under x-ray treatment remains to be seen. I think radium is the best therapeutic agent we have today for epithelioma, particularly so when emanation or radium needles are used. By the introduction of radium into the structure of the tumor itself there is no waste of rays, and in the same amount of time we get three times the radiation that we do in surface radiation.

Some one has asked the question, how long before a surgical operation should the patient be subjected to x-ray treatment: Some authors recommend one erythema dose four, six or even ten days before the patient is ready for surgery. Others give the limit of two days. I believe it is advisable to give two doses of x-ray before any surgery is attempted for malignant disease. The x-ray may be used a few days or even a week before operation.

J. Hunter Peak: I am sure all of us appreciate the excellent paper read by Dr. Beck. There is no question in my mind that tumors about the face and neck should be handled in the same way as tumors of the breast and anywhere else; that is, remove the glands first and then remove the growth with all connective tissue through which the tumor passes. This was the plan pursued by Dr. Beck in the case reported and I believe it is the proper way in which to handle such cases.

Many of you possibly remember seeing Dr. J. A. Oschner's paper in the American Medical Association Journal He reported several cases of cancer of the breast that were considered inoperable when the patients first came under observation. He showed pictures of the patients and stated that they were considered incurable. By the use of the x-ray from time to time extending over a considerable period the growth of the tumors seemed to be arrested in some degree, and he then removed the growths by the usual radical operation. He also showed pictures of the patients taken four or five years afterward, showing that they were perfectly well. He claimed that the x-ray was a great aid to surgery, particularly when used before any operative work was undertaken. He also stated that he always subjected his patients to x-ray treatment after operation.

So far as epithelioma about the face is concerned: While I am a surgeon and do not use radium, I believe the safest plan is to treat the patient with radium. I have seen a great many of them get well under this method of treatment. If radium can be used before any glandular enlargement has occurred nearly every patient can be cured in a short time. I have referred a large number of such cases to Dr. Keith during the last few years and only recall one that did not get well. In that case the disease had become so extensive that I believe the patient would have died no matter what treatment was applied.

Chas. K. Beck (closing): I wish to thank the gentlemen for their liberal discussion of my paper. In the case reported no Wassermann test was made, and a few other things were not done. For instance, the mediastinal space was not examined by means of the x-ray; that is, no picture was made, so I do not know what was the condition of the interior of the chest. I take it for granted, however, that there was no involvement of the mediastinal glands because the lymph nodes removed from the root of the neck were normal according to the report made by Dr. Graves, and it seems to me that tumor cells would of necessity have to filter through these glands in order to reach the mediastinal space.

When the patient came to me I thought of the possibility of syphilis, but I have never seen a gland enlarged to the size of a goose egg from syphilitic infection. Moreover, the man was in moderate circumstances and did not want to increase his expenses more than was absolutely necessary. There was no history of syphilis and no Wassermann test was made. In my opinion these glandular enlargements were not due to syphilis.

There was no enlargement of either the skin, the conjunctiva or the lachrymal sac or gland. The tumors were simply underneath, but not attached to the skin. The original growth embraced the inferior rectus muscle and that was one reason why better results were not secured from the eye operation, because the rectus muscle had to be removed in extirpating the primary tumor and there was not very much muscle tissue left.

When the patient applied to me for relief I gave him a guarded prognosis. I told him the conditions were such that he must not expect very much, but if he wanted me to treat him I would do the best I could. I have been watching him carefully since the operation and, of course, am hoping there will be no recurrence, but the patient understands the situation thoroughly. We do not know whether the disease is cured or not. If there is no recurrence in four or five years we will feel like congratulating ourselves.

When I undertook the surgical treatment of this case there was no question in my mind about the possibility of its being Hodgkin's disease; in fact I never thought of Hodgkin's disease in connection with it. The tumor originated just beneath the eyelid and within a month extended to the lymph glands of the cheek which were enormously enlarged at the time of the operation; then extended to other glands in the parotid region. There were no enlarged glands elsewhere.

At no time has the patient been anemic, nor have there been any other symptoms of Hodgkin's disease. As a matter of fact I did not entertain the idea of Hodgkin's disease until I received Dr. Graves report that the tumor was probably a lymphoblastoma. There seemed to be some question in his mind as to what the condition really was.

THE ENDOCRINES AND THEIR RELATION TO FUTURE MEDICINE.*

By P. K. Holmes, Lexington.

As bacteriology revolutionized the medical profession less than a half century ago, so may endocrinology do the same in the next decade.

Since the days of Galen and Hippocrates preparations of animal glands have been used, but with vague ideas as to their significance. All of our real knowledge of the endocrine glands has been acquired within the last fifty years and most of this in the last ten or fifteen. Today the literature includes over four hundred books and a thousand articles and reprints. Half of these are English. Prior to 1914 few of these were in English. It may thus be seen that organotherapy is both the oldest and the newest therapy.

Bordeu, of Paris, over a hundred years ago, observed that these organs were glandular, but he did not call them true glands because the characteristic ducts were not present. It remained for Berthold, of Gottingen, in 1849, to demonstrate their real character. He removed the testes of four roosters and transplanted them under the skin and noted the development of the male sex characteristics as usual. He thus proved that these glands of external secretion had an internal secretion as well. His little four page report was published ten years before Darwin's "Origin of Species." It failed to attract any attention until forty years after, when his principles were rediscovered by Brown-Sequard. In 1889 Brown-Sequard discovered that the secretions of the sex glands were capable of producing rejuvenation in the old. For this he was ridiculed in Paris and was charged with quackery.

Nenle, one of the greatest anatomists of his day, said that these glands had no influence on animal life, and that they should be dismissed as curious nonentites.

All new discoveries are hailed with both enthusiasm and contempt at the same time. Some of their enthusiasm will expect of organotherapy a remedy for every human ailment; others will treat it with but scant concern. The enthusiasts will meet with some disappointment and the scoffers will have scoffed too soon. Enough in this field of wondous possibilities is already known to stir the emotion of the most conservative in the profession.

Of the various glands the thyroid is probably the best known. It weighs but one ounce, yet all the blood of the body passes through it every hour. Originally it was purely a sex gland. In the lowest vertebrates and the highest invertebrates it is connected with the ducts of the sex glands. Going upwards it migrates more and more to the head. It thus becomes the great link between the sex glands and the braian.

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*Read before the Kentucky Valley Medical Association.

The normal function of the thyroid is to promote growth and possibly to neutralize poisons. When it is defective or missing we have the cretin, a typical example of general growth retardation. Its normal activity depends upon the presence of iodine within its cells. After forty years of age the iodine content gradually diminishes. With this diminution there is a loss of physical vigor. Men who rapidly put on weight after forty may be suspected of hypo-thyroidism.

Many conditions depend upon the normal functioning of the thyroid. Hyperfunctioning may hasten development of the sex characteristics in a child. Hypo-functioning may retard the development of these. Thus excessive functioning may account for girls at the beginning of puberty showing immoral traits.

The thyroid has been called the "great controller of the speed of living." Hyperfunction means great speed. When these reactions go on faster more food is burned through greater oxidation and with a greater liberation of energy. One thus feels, thinks and acts more quickly. The vivacity of our American women has been attributed to the hyperactivity of the thyroid. Tad-poles are hastened into frogs prematurely through the action of thyroid extract. Through feeding of thyroid extract the Mexican oxolotol, a purely acquatic newt, is changed from a gill to a lung breather.

The parathyroids, four tiny glands scarcely larger than kernels of wheat, are now known to be essential to life. They probably have to do with the maintenance of lime in the blood. They are related to the thyroid organically and functionally. They act though as autogonists to the thyroid. Interference with their function seems to decrease resistance to bacterial infection.

Little was known of the adrenals until Addison in 1849 noticed that lesions in them caused a bronzing of the skin. In 1895 Oliver Schafer, a Scotch physiologist, demonstrated that they contained something essential to life. This essential something has been called epinephrin. These glands are composed of two morphologically and functionally distinct parts, the cortex and the medula. Both parts are separate in the fish. In the embryo the cortex is derived from the same patch that gives rise to the sex glands, the germinal epithelium.

The function of the adrenals is thought to be that of neutralizing toxins, meeting emergencies, giving muscle tonus and stimulating metabolism. They may be concerned in the manufacture of immune agents through inoculation.

Death from apparent cardiac insufficiency which shows the heart to be normal at autopsy, may be due to small glands which cannot furnish sufficient stimulation. This may also be the cause of sudden deaths after operation. This is probably a condition of congenital inferiority of the chromatin system.

Tumors of the adrenals which cause them to greatly over secrete may cause little children to suddenly grow into adults.

The emotions of every day life probably have more effect upon these glands than upon any others. They are affected by minute doses of poison, acute infections, shock, bad news, etc. These emotions make a heavy drain upon them and cause them to wear out. Vigor and pugnacity are largely a question of good adrenals. Neurasthenia or chronic physical disability is largely a question of insufficient thyroids.

The pituitary was thought by the ancients to have been the source of nasal mucous—thus an organ of pure excretion. It is a gland of the size of pea, situated at the base of the brain in the Sella Tursica and just behind the root of the nose. It is composed of two morphologically and functionally distinct parts, the anterior and the posterior lobes. The anterior lobe is a proliferation of the cells of the mouth era. It is of the same origin as the thyroid and has a similar function, that of growth promotion and control. The thyroid controls the outer covering of the body, the skin, glands, hair, and mucous membrane; the anterior lobe of the pituitary, the bony frame-work more especially.

The posterior lobe is derived from the nervous system. When the anterior lobe fails to function dwarfism results. When the posterior lobe fails to function giantism results. Each lobe may function separately. The thyroid facilitates energy production. The pituitary makes possible its consumption.

The thymus is situated in the chest and extends up to the lower borders of the neck. It was once thought to disappear after two, but it is now known that it persist until fourteen. Its chief function is that of dominating childhood. It exerts an inhibitory action upon the sex glands. It also has to do with muscletonus and with the removal of injurious substance from the blood. It is closely related to the thyroid. Castration after puberty begins causes an increase in the size of the thymus.

The pineal, once thought to have been a third eye, is situated at the base of the brain behind and above the pituitary. Its function is that of acting as a break upon the adrenal cortex. It replaces the thymus as the inhibitor after the second year. The pineal era is from the second to the fourteenth year. It atrophies before the onset of adolescence. It has been called the gland of masculinity.

A tumor upon the pineal of a boy of six or seven may stimulate abnormal growth in height, hair and genitalia.

Although these glands have special functions they do not act independently. Their functions are closely interrelated. The pituitary co-operates with the thyroid in concerted action upon the sex glands. While some cooperate others oppose. The action of the mammaries is in opposition to that of the adrenals.

Practically all of these glands have to do with the growth processes.

When one becomes familiar with the symptoms of glandular disturbance he may readily discern the condition of the glands through the general appearance of the patient. The size, general build, rate of growth, hair, fat, temperament, sex life, etc., are all significant.

Freckles and dark spots upon the skin suggest adrenal disturbance. Hypersecretion of the pituitary in the male predisposes towards female characteristics. Hypersecretion of the adrenals in the female predisposes toward male characteristics. If the testes are deficient in function the man becomes effeminate. If the ovaries are deficient the woman becomes masculine. Hypothyroidism, hypo-post-pituitarism and hypo-adrenalism produce obesity.

War neurosis can be accounted for by adrenal exhaustion. Children's diseases strike especially at these glands. Hippocrates noted that certain diseases had an affinity for certain types—tuberculosis for the thin, apoplexy for the stalky, diphtheria among those of the poor adrenal type, etc. An insufficient functioning thyroid may be responsible for relaxation of ligaments as in the heel and ankle and thus cause flat feet, knock knees, lordosis, etc.

In the light of recent investigation mental deficiency and criminality may be largely due to glandular deficiency. Martin Luther recommended that a certain child of twelve be drowned and that prayers then be offered to cleanse her soul of the devil. Our Puritan ancestors burned persons whom they supposed were possessed of devils. Today we would call such victims feeble-minded. Boys who run away from a good home and girls who steal when they have everything and others who forge checks, etc., are in some way defective. They are thus impelled with overpowering and uncontrollable impulses. Crimes of passion are generally committed by persons with thyroid disturbances. In Pittsburg recently a study of delinquent girls was made. It was found that ninety per cent of them had enlarged thyroids. There is something wrong here with their mental mechanism. They cannot adjust properly. Adjustment must be made through these glands.

In the light of the present knowledge of these glands it is permissable to believe that the chemical substances contained in them may be the real arbiters of our instincts, dispositions, emotions, reactions and temperaments. Our psychical and physical traits may be dominated by them. Individuals, families and races show definite endocrine traits in form, size, kind of face, length of bones, disposition of fat, distribution of body hair, tonicity of muscles, sound of voice, etc. Certain races are characterized as emotional. This is especially true of the negro race which has as a whole very active posterior pituitary. Types of music differ in races, perhaps due to these glands. Histories may have to be explained from a new angle and biographies rewritten. Our internal glands may represent the real basis of personality.

It may be that we can rightly speak of endocrine types. The "adrenal-centred" type is the driver, the dynamic person. The pituitary type is the muscular person. The hyperthyroid type is characterized by being "popeyed." The hypo thyroid, as being "sunken eyed." The hyperpituitary type has the long, narrow face with prominent cheek bones.

As long as man has been man he has been seeking the "fountain of eternal youth," but with no avail. It may be that in the near future this fond dream will be to a certain extent realized through glandular therapy. It would seem that senility is a condition of the exhaustion of the endocrine glands. Some of the well known evidences of senility are falling out of the hair, dropping out of the teeth, drying of the skin, diminution of perspiration, accumulation of fat, etc. These are all conditions characterized by defectiveness of the thyroid. Steinach, of Vienna, temporarily rejuvenated old and decrepit male rats by slitting up the genital duct of the testes and allowing the interstitial cells to hypertrophy and multiply.

At the change of life a readjustment of relations between the glands occurs. It is, though, more of a shifting of predominance of influence.

Bandler, of New York, and others have for quite a few years been depending in their practice, and especially upon children, largely upon glandular therapy.

It may mean that in the light of what is being discovered about the ductless glands that our text books of medicine will have to be rewritten and from an entirely new angle. It may revolutionize our ideas as to what immunity is—as to why certain people are susceptible to bacterial infections and others are not. If states are determined by the condition of the glands general medication for these would seem futile. Organotherapy is being applied with varying results in tuberculosis, epilepsy, asthma, rheumatism, obesity, sexual importance, ovarian disorders, mental defectiveness, etc. If untoward conditions are due to over-activity it must be cut down or modified. If they are due to underactivity, it would seem reasonable to believe that they would be benefited by supplying the glandular deficiency. Several of the reliable commercial laboratories are now supplying these glandular extracts.

The indications are then that of the future of medicine is bright in the field of organotherapy.

SYMPTOMS AND TREATMENT OF PUERPURAL INFECTION.*

By R. C. Burrow, Cunningham.

An elevated temperature and frequent pulse are perhaps the first noticeable symptoms of puerpural infection, or a foul odor may be the first thing to warn the experienced physician that all is not well. With the fever we find the coated tongue, disinclination to take food, and often nausea and vomiting or great thirst, and sometimes a septic diarrhea in the worst cases. Redness of the mucous membrane, spots of ulceration and false membranous formation along the lower genital canal, are among the local symptoms that may be observed. Later pelvic peritonitis with an exudate may be a symptom, but the elevated temperature alone with us where no other cause can be found, and coming on from one to five days after labor, would be diagnosed puerpural infection until a culture from the uterine cavity is pronounced sterile.

Symptoms of three forms of puerpural infection might be given:

(1) Sapremia, due to the absorption of poisonous ptomaines from a putrefying area. The bacteria themselves do not enter the blood, but the toxins do. In this form the reaction after labor is incomplete; the symptoms (chills, or chilly sensations and fever) develop in from a few hours to two or three days.

(2) True puerpural septicemia, where the bacteria and their toxins enter the blood. The symptoms develop within from four to seven days. In this form the morning remission or intermission is more pronounced. The sweating during the remission is more copious; the fever often rises very high before death; sores gather on teeth and gums; vomiting is frequent, and as a rule there is diarrhea; low delirium alternates with stupor and coma; prostration is so manifest as to be characteristic.

(3) Pyemia. Metastatic abscesses are the characteristic symptoms of this form. Symptoms vary according to parts involved or the organs in which the embolus lodge. Joints separation, broncho-pneumonia, pleuritis, empyema, endocarditis, pericarditis, peritonitis, nephritis, cholecystitis, pyelitis are among the complications that may exist.

PREVENTIVE TREATMENT

We will not try to describe under this head ideal conditions that might be had in a well equipped lying-in hospital, but what the general practitioner can do in the homes as he finds them, and although often after we have done our best the conditions are anything but ideal, we feel encouraged to go on by the decreasing number of cases of puerperal infection. When we have been engaged and have an opportunity to call upon our patient before confinement, much can be done toward making conditions sanitary, and usually advice in making those preparations is appreciated by our patients.

If a choice of rooms is to be had, we choose a sunny, well ventilated room with no extra furniture or hangings. The patient should be instructed how to prepare antiseptic vulva-pads of salicylated cotton and carbolized gauze; inform her why everything about her bed should be clean and aseptic; let her know that the practice of throwing any old dirty rag over the bed to keep it from being soiled is often the source of infection; tell her how aseptic pads can be prepared cheap; let her know that where hot air cannot be had that a hot iron can be used as a substitute to render her linen aseptic. Teach her the importance of having her body clean and aseptic, also her clothing at this time. This we can do when we have the opportunity of seeing our patient before confinement, but, alas, how often these simple precautions are denied us in rural practice, for often we know nothing of our patient's condition until we are called to attend her in confinement, and unfortunately those late calls come from the homes that are the most unsanitary. Often it is a large family living in one small room, the bedding has been used for many like occasions. If we could make a choice of rooms here, the stock barn would probably be selected.

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*Read before the Carlisle County Medical Society.

Under those conditions do not make a digital examination if it can be avoided. Ascertain the position of the fetus by palpitating the abdomen; expel the placenta by kneading the womb and gentle traction on the cord; risk the retention of secundines rather than insert the hand or instrument to remove them under those conditions. If it becomes absolutely necessary to insert the finger or hand in the vagina or womb, first cleanse the skin around the vulva and anus with antiseptic soap and 1-2000 bichloride; pain the skin with idoine, protect hand with rubber glove; let your eye guide your hand to the vulva so it will not come in contact with any germ that might infect your patient. We will not close preventative treatment without saying that if serum therapy meets the expectations of some, we will some day vaccinate our patients with antisepticococcus, staphylococcus and gonococcus serum and feel perfectly safe.

MEDICINAL TREATMENT

In sapremia remove the focus of infection. This is often a piece of adherent placenta or shreds of membrane. Its removal on account of the soft boggy condition of the uterus is so dangerous that it is condemned by many able authorities, but with a dull curet or placenta forceps, used with proper care, it can be done without injury and seems to us as the only rational procedure. Our method is to clean the womb and mop the internal surface with equal parts of carbolic acid and iodine. I have seen the temperature drop from 103 to normal within three hours after this treatment. As stated above, in this from of puerperal infection the bacteria are not in the blood but their toxins are, and after doing all we can to remove the focus of infection, if the fever continues, our next efforts are directed to the neutralizing of their toxic products, hastening the elimination of poison, and to increasing the natural resistance of the patient. To neutralize the toxins and steady the circulation, and quiet the nervous system, we give veratrum gtt. 1, gelsemium, gtt. 1, and echinacea gtt. 15 every hour, regardless of the report of the council on pharmacy and chemistry of the U. S. P. that echinacea is inert, hundreds of close observing physicians use it almost to the exclusion of other medicines to neutralize not only the toxic poison of bacteria, but the toxic poison of snakes and other poisonous insects, understand it will not kill the bacteria, but it will neutralize their toxins.

To hasten elimination, saline catharsis and normal salt injections are used. Calomel is often used here with good results, if used at all, it should be used in large doses.

To sustain your patient and increase natural resistance, use stimulants and an abunddance of nourishing food and fresh air.

In the treatment of true puerperal infection we must remember that not only the toxins but the bacteria themselves are in the blood, and besides the means used for toxic infections, collargal (colloidal silver) give intravenously by inunction or per rectum is recommended, also polyvalent serum should be used.

In pyemia or metastasis, hunt the local infection and treat. Besides treatment recommended for the other forms of infection, almost every operation known to surgery may be called for in pyemia and cannot be taken up separately here.

Grafts of Ovaries.—Tuffier analyzes his 230 cases of graft or shifting of an ovary. The results were better in the younger women. One woman has had fairly regular menstruation for twelve years since the ovary was removed to another region from the infected area, at the age of 18. Menstruation cannot be restored if more than two-thirds of the uterus has been removed. In his 230 cases of these autografts, both ovaries were thus shifted in 18 cases. Menstruation was never restored with an ovary grafted from another woman (20 cases), but in 76.71 per cent of the 73 women whose ovary had been shifted, menstruation returned in from five to seven months; in a few instances not until after months or more. One woman thus regularly menstruating had the grafted ovary removed, and there was no further menstruation. The menses were not as regular as in normal conditions, and menstruation did not usually continue very long; in 14 of 51 operative cases only for six months; in 4 for two or three years, and in only 2 for longer than this.

PREVENTIVE MEDICINE AND ITS ACHIEVEMENTS.*

By J. H. Harrison, Hawesville.

As far back into remote history of mankind as we are able to gather data we find that he has always manifested, more or less, a disposition to minister to the needs of those suffering of diseases. In fact, man has always possessed a natural instinct to help his afflicted brother. We see this disposition among the lower animals; for example, the dog licks the wounds of his mate to relieve his suffering. Just how far back into antiquity is dated the birth of the healing art we do not know, but, certainly, according to historians, the ancient Egyptians, to some extent, practiced the healing art, having of course, some very vague and peculiar ideas; for example, when a prominent member of their tribe died, they would send for the embalmer (who was then the doctor) and, after he had finished his work and done it well, they stoned him to death.

The old sages consulted the moon and the stars and the rippling brooks regarding the sick; the prognosis of a given case was based on the position of the moon and the stars and the flight of the birds. Hysterical monomania was cured by the administration of an infusion of wild helabore with sweet milk. Various diseases were treated by the charms of trained and harmless serpents and the use of the magic wand. The patient was often made to stand in a public place where all the passersby might see him and offer some remedy for his relief. Strange practices, indeed, to modern civilization and methods, but it shows that there has long since been a strong desire on the part of the followers of the healing art, as well as the laymen, to use every resource at their command for relieving the sick.

For hundreds of years those afflicted of diseases have been receiving the best medical attention at our command and for ages we have been searching for remedies for the cure of diseases; and humanity, all this while, has been tumbling into a mighty pool of typhoid fever, pneumonia, influenza, malaria fever, yellow fever, insanity, paraplegia and hemiplegia, loco-motor ataxia, epilepsy, and various other preventable diseases and we have been using every effort at our command to combat the enemy of human life. Men and women have given their lives for the relief of others, yet we have only been meeting a condition which is, in a large degree, preventable. Unlimited millions of dollars have been spent for devising means to cure the sick.

Throughout this great country of ours we see immense hospitals erected, with every surgical and medical equipment imaginable, magnificent in their structure, beautiful in their architectural arrangement, and, certainly, they speak for us a disposition to charity and love for our fellowmen. We see in this an inclination to emulate the story of the Good Samaritan, a response to a noble impulse, but the scheme only meets a condition that exists for which you and I are largely responsible, and it is a reflection on our intelligence that such has to be.

In former years we have sown the seed and are now reaping the harvest at a cost of many dollars. Why continue to fill the alms houses, hospitals, blind and insane asylums when such can be largely prevented? If it is true that all diseases are derived from two sources, namely heredity and environment, then, certainly, all diseases are preventable. It is not strange, after duly reflecting, that we, in an age of civilization and educational advancement, are still furnishing such a large supply of material when at least, according to statistics, 60 per cent is preventable?

We are now emerging from the worst war that the world has ever known, and we need not tell you of its horrors. We lost, all told, 80,000 of the bravest boys that ever stood for or faced a flag. Oh, the tragedies of Flanders' Field, with its unnamed graves, need not be repeated; many of us have a vivid picture of this awful event. Mothers have wept and will continue to weep for their brave sons; broken-hearted sweethearts and wives will continue in mourning for their loved ones; and we would not take one single star from the halo of their glory, but would have the mild zephyrs forever sing songs of heroism o'er the graves of the sleeping warriors in France. All glory be theirs! But here is another picture in the drama! Under the protecting arms of our great government, beneath our flag, in the same period of time, 450,000 devoted mothers planted the farewell kiss on the fevered brow of as many innocent babes who took their flight to the great beyond, victims of preventable diseases. We are losing in this country, annually, from 120,000 to 200,000 human lives from tuberculosis alone. Compare the above with the tragedies of war. Do you remember, a few years ago, when we received the awful news that Kaiser Bill had assumed command of the German army and was firing on Paris seventy miles away; our neighbors became frantic, women were weeping for the fate of our boys who were facing the cannons' mouth; strong and brave men were made to tremble for fear of the awful consequences. We tell you today that preventable diseases are in command of an army ten times more destructive which is firing into us its deadly missiles at a much closer range than seventy miles, if you please, and we are not much alarmed. If you were to receive the intelligence that, on our great Eastern coast, there is being mustered an army that was reeking its venegance on innocent children and depleting our ranks by 450,000 in less than three years and was taking from the active walks of life young men and women of sterling worth and noble character to the extent of over 200,000 annually, don't you think we would be mustering some kind of a counter force to meet its mighty onslaught? What is our counter force to meet this great enemy of human lives? We spend $2,500 a day for keeping one old German warship tied to the docks; we spend $8.98 per capita for the advancement of our children to the eighth grade in the common schools; we spend $2.85 for police and fire protection; we spend $1.72 per capita to prevent hog cholera; we spend the enormous sum of 29 cents for the prevention of contagious diseases. Twenty-nine cents represents the counter force we have organized to stay the ravages of this army that is destroying hundreds of thousands of innocent babes and taking from the active walks young men and women. We actually attach more importance to the making of flapper scarfs, frills and sun-bonnets than we do to the protection of human lives; (no reflection on our home demonstrator). We pay more attention to the saving of the lives of hogs and to animal husbandry than to the saving of human lives. We spent in this country $500,000,000 annually for medicine, $300,000,000 of which goes for patent medicine, which is worse than useless. Our state and government have been paying exorbitant prices for its several employees and a health officer and sanitarian must live on the minimum.

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*Read before the Daviess County Medical Society.

Sickness, says the students of economy, is a most expensive misfortune. We actually fail to estimate the value of an individual one hundred per cent physically fit. We are not awakened to the fact that keeping well constitutes ninety per cent of human happiness. We fail to see the importance of keeping well and physically fit.

During the World War we had twenty-six deaths from typhoid fever out of 6,000,000 men enlisted in the army; this was under a rigid system of vaccination. The same system practiced on the citizenship of the United States we would have lost only 460; without the system of vaccination, our loss to private citizens would have been over 200,000. Does it pay? Judging from the above statements, and they are facts, we could never have carried on the World War to a successful end had it not been for sanitary science and ventive medicine. Sanitary science and prepreventive medicine have done more to the advancement of civiiization than any other force we have ever had at our command; and, strange to say, it was as late as the latter part of the seventeenth century before there had ever been any concrete steps taken in the way of preventive measures, at which time the immortal Jenner announced to the world his wonderful discovery of small-pox vaccine. Had it not been for the unselfish and persistent efforts of Gorgas and his co-workers it would never have been possible for us to have completed the Panama Canal, which stands pre-eminently as the greatest engineering fete that has ever been accomplished by any nation. In this we have connected the two great water ways of the world and saved to transportation unlimited expense. What is it worth?

As a people we are strikingly given to hero-worship. If some one plunges into a pool of water and rescues a drowning child from death we vote him a Carnegie medal. If some one snatches a child from under the wheels of a moving vehicle and thereby saves a life, we hold a public reception in his honor. If a telegraph operator stands at his post of duty, sending the messages during an electrical storm or a case of burglary, his name will appear in glaring display type in the newspapers of throughout the country and he is exploited as a hero. The medical profession, through the agency of sanitary science and preventive medicine, during the first ten months of 1921 in Canada and the United States, saved 153,000 lives and many of us have never been the happy recipients of such intelligence. Medical science, by persistent efforts, in the last few years has reduced the death rate of tuberculosis from over 200,000 to 120,000. At this same rate of reduction, within the next fifty to seventy-five years, we will have stamped out tuberculosis or placed it where we have typhoid fever and many other infectious diseases. What has become of the fearful epidemics of a few years ago that we used to so dread; the horrors of the black pest; the terrors of small-pox; the toxic delirium of typhoid fever; that dreaded enemy of young life, diphtheria; the death-dealing yellow fever? All are away to their dwellings of rest.

This recites to you some of the achievements of the medical profession through the agencies of preventive medicine and sanitary science and we have given it no publication, but such is human. Historians pay a glowing tribute to the vain, useless, and brutal conquests of Napoleon Bonapart, Julius Caesar, and Alexander the Great, leaving in their paths the blackened shadows of disappointment, destitution and despair, while Gorgas, as well as many others, and his corps of men, through their unselfish work, have left in their path peace, happiness, contentment, to an otherwise afflicted and disease-stricken people, and rendered the unsightly tropics a congenial home for mankind. The Krupp and Lewis Gun Companies have piled up their millions as their reward for the invention of means with which to destroy human lives. The medical profession remains unhonored and unsung for its achievement (saving human life.)

The great work of the medical profession and sanitary science cannot be paid in dollars and cents, but must await the verdict of the Court of Eternal Justice—"When every right comes uppermost and ever is justice done." As for me, I had rather be held in esteem and tender relation and affection by the good mothers of this country for having saved the lives of innocent children than to have a monument as high as the heavens, wreathed in pearls and diamonds, erected to my memory for any other achievement.

The name of Jenner, Lister, Gorgas, Behring and others should be recorded on the pages of history as thrice times the greatest benefactors of the human race, and, doubtless, some day, after the verdict of the final court shall have been reached, the great and impartial Recorder, who stands for Justice, will write at the top of the page, in letters of pure gold, the names of the ones who loved their fellowmen; and these names will be the ones whose strong arms, big hearts, and sacrificing love have thrown out the life line to the helpless mothers and babes throughout this great country.

Arsenical Conjunctivitis.—Milian called attention nearly ten years ago to congestion of the conjunctivae as a premonitory sign of poisoning from atoxyl, warning of impending blindness. He now generalizes this warning, saying that it applies to all arsenicals. The arsenic induces a paralytic vasodilatation. This may be the first and long the only symptom from the arsenic poisoning, but this arsenical conjunctivitis warns of danger and calls for longer postponing of the next injection of the arsenical. A little epinephrin morning and evening may be useful, but the main indication is to ward off microbian infection of the eyes while this paralytic vasodilatation lasts.

AN UNUSUAL CASE OF CONGENITAL HERNIA.*

By Wm. T. McConnell, Louisville.

On January 6, 1922, I was called to the home of Mrs. J. W., and found her in labor, with both feet of the fetus protruding from the vulva. Not having been apprised of the fact that the patient was in labor, I was unprepared for the delivery; and as the uterine contractions were severe, and almost continuous, no time was permitted for sterile or even strictly sanitary delivery. No particular difficulty was experienced in the extraction, and a fairly well-nourished living male child, weighing four pounds, was delivered. As near as could be determined from the size of the child, and the history of the gestation, the labor was somewhat more than a month premature.

In examining the child it was found that practically all of the small intestines, the vermiform appendix and part of the cecum were protruding through a complete perforation in the abdominal wall, lying loose and free upon the surface of the abdomen. The opening was circular, located about one cm. to the right of the umbilicus, and measured one and one-half cm. in diameter. The parietal layer of the peritoneum was completely fused with the abdominal skin around the edge of the opening, making a smooth, firm border, having the appearance of healthy tissue. The recti muscles were widely separated, the aperture being well to the mesial side of the right rectus.

The coils of intestine were very dark looking, swollen and congested. It was with great difficulty that I was finally able to reduce the protruding mass into the abdominal cavity. I then injected some 5% argyrol into the abdomen through this opening, and applied a dressing held tightly in place with strips of adhesive plaster.

About the third day severe peritonitis developed, the abdomen becoming very much distended, the child vomiting yellowish-green material frequently and passing a watery, greenish stool about once every hour. During the next few days the weight decreased to two pounds. In about four days this condition began to subside, so that by the time the baby was two weeks old the distention had practically disappeared, the stools were about normal, and the baby was taking its nourishment regularly, vomiting only occasionally, and then nothing but curdled milk. The opening in the abdomen had contracted until it was almost closed and had a healthy appearance.

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*Read before the Jefferson County Medical Society.

On the nineteenth day the abdomen distended very rapidly. In two or three hours the distension disappeared suddenly, the child went into profound shock, and died within one hour. At the time of death a match could not be passed through the abdominal opening.

On September 12, 1921, about four months prior to the birth of the child, the maternal grandmother, with whom the mother was making her home, was operated upon by Dr. J. Garland Sherrill for a very large umbilical hernia. The recti muscles of the child's mother are also very widely separated, and the abdominal wall very thin in the umbilical region, but as yet she has no hernia.

Another feature of interest in this case is that the deformity could hardly be attributed to developmental failure, as is harelip, because at no time in embryonic existence is there any opening in the abdominal wall, except the potential opening through the lumen of the umbilical cord. From the time when the ectoderm of the embryonic disc in the second week begins to fold in ventrally contracting around the yolk stalk, there is no break in the continuity of structure, the outermost layer of the skin of the abdomen being continuous with the covering of the cord and continuing on to form the innermost layer of the amniotis sac. But this opening was some distance from the umbilicus where no development opening could have been.

I have been able to find no mention in literature of a simliar case, and am somewhat at a loss to account for this condition, unless it should be due to some from of pressure necrosis or to traumatic agents.

DISCUSSION:

Oscar Bloch: Dr. McConnell's report is most interesting and admirably presented. I have had no experience with cases such as he has described and am delighted to have heard his report. I wish to commend him for the common sense used in treating this very awkward and most unusual type of deformity. While the outcome of the case is to be regretted, this does not imply any criticism of the method of treatment employed. It would have been pleasant, indeed, for him to have reported that the child lived as a result of his treatment. Death evidently occurred from exhaustion and lack of nutrition.

John K. Freeman: I wish Dr. McConnell would tell us in closing what caused death of the child in the case he has reported. There must have been some other deformity involving the intestinal tract, in addition to the congenital hernia he has described to account for the fatality.

As to his method of treatment: I think he managed the case better than the most of us could have done, and it is unfortunate the child did not survive. It is to be regretted that permission for an autopsy could not be obtained. This would have shown the real cause of death.

Dr. McConnell probably did not intend to convey the impression that the operation performed upon the grandmother a few months prior to the birth of this child had anything to do with production of the deformity. If infantile imperfections could be traced to maternal impressions all of us would be deformed. Probably every mother at some time during the nine months she is carrying her child is subjected to fright or slight injury. We know, however, this can have no effect upon the developing fetus in utero. To lead the laity to believe that birth marks and various deformities are due to maternal impressions is harmful. The prospective mother becomes profoundly impressed after fright or injury and actually thinks her child will be deformed or "marked" when born if she believes in such vagaries. Let us dispel this from their minds.

M. Casper: About twenty years ago (while still in general practice) within a period of a few weeks I encountered two cases resembling the one reported by Dr. McConnell. Both children died shortly after birth, one of them within twenty-four hours. The entire front of the abdomen was absent in both instances. There was merely a thin covering of veil-like material about the color of the funis over the abdominal viscera. This material was continuous with the tissues of the cord. There was no evidence of muscular tissue or fascia in either case.

I would like to know something more about the embryonic changes which occur in the production of conditions of this kind.

W. T. McConnell (closing): In answer to Dr. Casper: It is my impression that the external layer of the embryonic disc did not progress in Dr. Casper's cases far enough to cover the abdominal cavity, thus leaving the sac open. In the case I have reported, however, the ectodermic layer had progressed far enough to have closed the abdominal cavity completely, and over the cord, as it should have done. So the opening could not have been due to a developmental failure, as Dr. Casper's cases probably were.

I am sorry that an autopsy was not obtained. The family did not notify me of the death of the child until it had been dead for twelve hours and were preparing for the funeral at the time. It is rather unfortunate that necropsy could not have been performed.

As to maternal impressions: Of course, I did not intend to create the impression that the grandmother's umbilical hernia had anything to do with the deformity of the child. I merely mentioned the fact in passing without any comment. The same statement will apply to separation of the recti muscles of the mother. I have always made it a practice in my obstetrical work to tell mothers that it is impossible for them to "mark" their babies; that so-called maternal impressions had nothing whatever to do with the production of infantile deformities or imperfections, but the majority of them finally believe in these superstitions. In the case reported the family naturally concluded that the deformity must be due to the mother's association with the grandmother who had a large umbilical hernia.

REPORT OF TWO DIABETIC CASES IN THE YOUNG.*

By R. Hayes Davis, Louisville.

A few years ago diabetes mellitus in the young was almost necessarily a fatal disease, but now fortunately owing to the tremendous scientific advance in the management of this grave malady, the lives of many patients may be prolonged almost indefinitely and some perhaps even cured. I am going to report two cases tonight that will illustrate clearly just how much can be accomplished with scientific treatment and absolute co-operation on the part of the patient. And it cannot be emphasized too strongly that the patient's cooperation must be absolute. As soon as he fails to follow instructions to the letter, the disease very *promptly* and quickly progresses to a fatal outcome. Case No. 1 is unfortunately of this latter type. Case No. 2 is ideal.

Case I.—J. W. S., a boy, aged 15, reported for treatment September, 1920. Has had ordinary diseases of childhood and was said to have had typhoid fever at age of three. Has had no infection for several years. Family history, negative. No cases of diabetes.

Present illness: During past six weeks has had very rapid loss of weight and progressive weakness. Can hardly walk across floor without assistance. Has great appetite for sweets and intense thirst and passes over a gallon of urine a day. No other symptoms.

The physical examination shows marked emaciation; the urine contains sugar, acetone and diacetic acid.

The boy was sent to the Norton Infirmary and a complete fast immedately instituted. This could be done as his physician had already greatly decreased his carbohydrates. After forty-eight hours he was sugar free. In seventy-two hours feeding with 5% vegetables was begun, increasing 10 gm. of carbohydrates a day, later followed by gradually increasing proteins and fats until he left the hospital at the end of five weeks sugar free and in excellent condition with a diet of 40 gm. of carbohydrates, 60 gm. of proteins and 100 gm. of fat.

He steadily gained weight and strength and returned to his normal mode of living and remained in excellent condition until three months later when he returned to Louisville. He was then sugar free, but his blood sugar was a little too high, so I made certain slight changes in his diet and have not heard from him until the other day, more than a year after the beginning of his treatment. His mother wrote that he had done perfectly until quite recently when he "broke over," and she said that he was now in serious condition again. I urged her to bring him back, but have heard nothing further. In this case the family trusted too much to the boy. They let him examine his own urine and manage his own diet without keeping a close enough observation of his case, and the result could only be disastrous.

Case II.—This patient had the good fortune of being the son of a most intelligent mother. He is a boy aged 17, who came under treatment in December, 1920. He had always been unusually healthy, having had no infections for many years. At the time of his illness he was a student at a well regulated preparatory school and lived a very normal life except that he consumed more sweets than his average companions. Family history is perfect.

Present illness: This began only two weeks before he came under my care. At this time he developed an excessive thirst, excessive hunger and polyuria. Has felt weak and had lost a few pounds in weight. Developed a generalized urticaria on the day of his arrival in Louisville. His school physician found 3% sugar and sent him home.

The physical examination showed a lad 6 feet 1 inch tall, weighing 129½ pounds, somewhat pale, but otherwise nothing abnormal. The urine contained a high percentage of sugar, acetone and diacetic acid. The blood sugar was 230 mg. per 100 cc.

This case was also placed on an immediate fast as his diet had already been greatly restricted. He became sugar free in twenty-four hours. In forty-eight hours feeding was begun.

The feeding in this case was conducted in the same way as in the pervious case until a diet of 40 gm. of carbohydrates 60 to 70 gm. of protein and 100 gm. of fat had been established. The fat was then reduced to 80 gm. and the carbohydrates increased at the rate of 5 gm. every few days until 55 gm. had been reached. At this time the state of health was excellent and the urine entirely free from the abnormalities and the blood sugar before breakfast 94 mg. per 100 cc.

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*Read before the Jefferson County Medical Society.

The patient was then sent to Dr. Joslin in Boston for further suggestions. Dr. Joslin's latest method in the management of these cases is to keep the fat low and to give as much carbohydrate as is necessary to establish the caloric value provided this can be done with perfect safety.

He kept the young man in his hospital for several weeks and sent him home with a carbohydrate tolerance of 200 gm., a protein allowance of 60 to 70 gm. and a fat allowance of 60 gm. He was given instructions to take sufficient exercise to prevent a gain in weight of over one pound a month.

The progress since then has been uneventful except on one occasion through a miscalculation in diet sugar developed, but was detected immediately by the patient who, of course, always makes a daily sugar test. This was promptly corrected and the original diet quickly re-established.

This young man does everything that his companions do and suffers no inconvenience except the care of his diet, which is no longer much trouble, as it has become a habit, and the monthly examinations of blood sugar. We watch this most carefully, but fortunately the numbers of examinations that have been made have always been normal.

In closing, I wish to emphasize several points that are most important.

1. Diabetes in the young should not be regarded as hopeless, but should always have the benefit of the most scientific management, as in the majority of instances the lives of the patients can be made long, useful and comfortable.

2. The patient must follow instructions absolutely. There is no such thing as success with half way methods. The use of scales must be insisted upon, and should never be discarded except in the most favorable cases where the diet has been thoroughly standardized, and then it should be checked frequently. Nothing can be accomplished without careful weighing of all food.

3. In order to secure proper co-operation the patient must be made familiar with the important phases of his disease, and must be taught to make daily examinations of his own urine, and for this purpose the use of Benedict's solution is the most practical test.

4. The patient must never get away from the close observation of a physician who understands diabetes thoroughly and should be instructed to report at once any abnormal condition that might arise.

For the proper regulation of the diet blood sugar estimations should be made, as these show slight abnormalities, whereas sugar does not appear in the urine until a more decided increase in the blood takes place.

The Ureter Reflux.—The three cases reported by Andre and Grandineau differ from the thirty on record in which there was reflux into a tuberculous kidney, in that in their cases the reflux occurred into the sound mate. They summarize two other cases of the kind from the literature, and ascribe the anomaly to the intensity of the contractions of the bladder in renal tuberculosis, and a gaping ureter mouth. Necropsy in one of their cases revealed the damage from the reflux. The ureter had become dilated, and the kidney pelvis, and a tuberculous process had started in the lower end of the urter. This ascending infection in time would have crept up to the sound kidney as in Wildbolz' experimentally induced ascending renal tuberculosis. Reflux into the second kidney may mislead interpreting the findings with catheterization of the ureter. A gaping ureter and pain in the second kidney pelvis or ureter from distention, when fluid is injected into the bladder are instructive. If this plan occurs spontaneously, its coincidence with contraction of the bladder or micturition must be evident. In old cases it may be necessary to place a lumbar drain permanently in the pelvis of the kidney subject to the reflux. This was done in two of their cases, permitting nephrectomy a little later in one case; the other was inoperable.

Effect of Influenza Vaccine Treatment.—By the use of the heated influenza vaccine, the morbidity of those inoculated was reduced by one-half as compared with the rate of those uninoculated. When the inoculation was begin just at the commencement of the epidemic and was finished by its acme, the morbidity among the inoculated persons, as compared with that among the uninoculated, was reduced to one-sixth by the use of the vaccine. The complications from catarrhal pneumonia were lessened in the case of inoculated patients to one-half and deaths to one-seventh. The length of fever was less among the inoculated persons in proportion to the quantity of vaccine inoculated. The reaction after the inoculation was so slight that cessation from work was unnecessary.

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ANNUAL MEETING, PADUCAH, 1922.

COUNTY SOCIETY REPORTS

THE KENTUCKY VALLEY MEDICAL ASSOCIATION.

The twenty-seventh meeting of the Kentucky Valley Medical Association convened in Berea.

Thursday Morning, May 18, 10:40 a. m.

Call to order by President, B. F. Robinson, Berea.

Invocation by Rev. John Cunningham, pastor Berea Baptist Church.

The address of welcome was given by Wm. J. Hutchins, President of Berea College.

The response to address of welcome, was given by T. C. Holloway, Lexington.

The Secretary-Treasurer, J. G. Bosley of Richmond, gave his report.

By vote of the members present the by-laws of the Association were amended to make the annual dues One Dollar instead of fifty cents.

By motion of W. B. McClure the chair appointed as committee to draft resolutions on the death of Dr. J. N. McCormack, the following were appointed: W. B. McClure, T. C. Holloway and C. M. Anderson.

Scientific Session.

J. A. Stucky, Lexington, gave a report on "Proceedings of the American College of Physicians and Surgeons, Section of Otology, Laryngology and Opthalmology." W. B. McClure, Lexington; A. Agee, Ravenna; H. G. Sandlin, Richmond, discussed the report.

H. G. Sandlin, Richmond, gave an interesting paper on "Typhoid Fever."

Afternoon session called to order at 1:30 p. m., by President B. F. Robinson.

Discussion of Dr. Sandlin's paper, W. C. Grant, Winchester; J. G. Carpenter, Stanford; Carl W. Wheeler, Lexington; A. Agee, Revenna; J. S. Lock, Barbourville; Phillip F. Barbour, Louisville; Wilson Clark, Lexington. Discussion closed by H. G. Sandlin, Richmond.

Philip F. Barbour, Louisville, read a paper on "Vomiting in Children." J. A. Stucky, Lexington; H. G. Sandlin, Richmond; W. B. McClure, Lexington; Wilson Clark, Lexington; Leon Solomon, Louisville; T. G. Cook, Stanford; B. F. Robinson, Berea, discussed the paper.

D. N. Kash, Jackson, read a paper on "Puerperal Sepsis." Discussion: C. W. Wheeler, Lexington; Wm. H. Joyner, East Bernstadt; J. G. Carpenter, Stanford; R. C. Coomer, Speedwell; A. Agee, Ravenna. Discussion closed by Dr. Kash.

C. A. Vance, Lexington, read a paper on "The Importance of Early Exploration in Contusions of the Abdomen," with report of cases. Discussion: R. L. Collins, Hazard; T. C. Holloway, Lexington; J. G. Carpenter, Stanford.

R. H. Cowley, Berea, read a paper on "Eye Conditions Secondary to Nasal Pathology." Discussion: M. Dunn, Richmond; J. A. Stucky, Lexington; J. G. Carpenter, Stanford. Discussion closed by Dr. Cowley.

Adjournment, 4:30 p. m.

The Association went in a body to the Fireside Industries Building of Berea College, where they were entertained at tea by Mrs. Ernberg. They were shown over the Log Palace and allowed to see the work being done by the girls of the mountains of Kentucky.

Thursday, 7:30 p. m.

The Association was called to order by the President, B. F. Robinson in the main chapel of Berea College, where resolutions on the death of J. N. McCormack were adopted. These resolutions will be published in the memorial issue of the Journal.

Friday Morning, 9 a. m.

Association called to order by the President, B. F. Robinson. Immediate adjournment to the main chapel of Berea College to attend an address by Prof. G. A. Hendon, of Louisville, to the student body and the Association.

10 a. m.

Call to order by the President, B. F. Robinson.

Election of officers for 1922, and choice of place for meeting next year.

R. L. Collins, Hazard, chosen President.

C. M. Anderson, Booneville, Vice-President.

J. D. Grant, Hazard, Secretary and Treasurer.

Incoming Secretary-Treasurer is authorized to buy a loose leaf ledger in which to keep permanent record of the proceedings of the Association.

H. G. Sandlin, Richmond, made motion that the Association accept the report of G. F. Doyle of meeting held in Winchester in 1920. Motion carried.

Scientific Session Resumed.

"Treatment of Surgical Tuberculosis," T. C. Holloway, Lexington. Discussion: John Herring, Lexington; W. F. Barker, Lexington; R. H. Cowley, Berea; J. G. Carpenter, Stanford; Leon Solomon, Louisville. Discussion closed by Dr. Holloway.

G. A. Hendon, Louisville, gave an address on Surgery, "Bone Dowel Pegs in the Treatment of Fractures. Discussion consisted of the asking of a number of questions, which were answered by Dr. Hendon.

Adjournment at 12 m.

Society called to order at 1:30 p. m. by the President.

Paper, subject selected, W. F. Boggess, Louisville. By vote of the Association it was decided to dispense with discussion of this paper and all those to follow.

J. G. Carpenter, Stanford, read a paper on "Follicular and Perifollicular Urethrethritis With Complications."

J. C. Thompson, Berea, read a paper on "Value of X-Ray Examinations in Pulmonary Tuberculosis."

By vote of the Association previous ruling was suspended to permit discussion of this paper. Discussion: Leon Solomon, Louisville; John Herring, Lexington.

W. M. Lipscomb, Lexington, read a paper on "Value of Periodic Physical Examination."

P. K. Holmes, Lexington, read a paper on "Endocrines And Their Relation to Future Medicine."

R. F. Coomer, Speedwell, read a paper on "Abortion, Miscarriage and Premature Labor, Diagnosis and Treatment."

L. L. Solomon, Louisville, read a paper on "Address in Medicine, Some Advances in Modern Day Treatment."

J. B. Kinnaird, Lancaster, read a paper on "An Interesting Case."

The Association gave a rising vote of thanks to President Wm. J. Hutchins and his able faculty for their hearty co-operation in making this meeting of the Kentucky Valley Medical Association such a success. This vote is to be expressed to him and the faculty in writing and signed by the President and Secretary of the Association.

The Association wishes to thank the ladies of Berea, who did so much to make the social side of the meeting a thing to be long remembered and recalled with pleasure.

The Association adjourned at 4:30 p. m. to meet at Hazard. Time to be set by incoming President.

J. G. BOSLEY, Secretary-Treasurer.

Carlisle.—Carlisle County Medical Society met in Cunningham, June 6, 1922, at 11 a. m., with the president in the chair. After divine invocation by Dr. Richmond, of Clinton, the minutes of the previous meeting were read and approved. Committee on arrangements reported that they had secured the fraternity hall for place of meeting and that Dr. Robertson had prepared dinner.

R. C. Burrow read his paper on "Puerperal Infection, which was very interesting and thoroughly discussed by all present.

H. A. Gilliam read a good paper on "Purpura in Infancy," bringing out the various classifications very prominently. We had a full and thorough discussion.

W. Z. Jackson read an excellent paper on "Empyema," which brought out a lengthy discussion as to when to drain.

D. S. Robertson read an interesting paper on "Symptoms and Treatment of Cholecystitis," which was discussed at length.

The society extended a vote of thanks to Dr. W. W. Richmond for his presence.

A memorial was offered to the late lamented Dr. Joseph N. McCormack, which will be published in a later issue.

The society extended a vote of thanks to Dr. and Mrs. Robertson for the elaborate entertainment, also to the fraternities fo rthe use of their hall.

We had a 100 per cent meeting, every doctor in the county was present, every paper on the program was read and every doctor joined in the discussions.

Milburn was selected as the next place of meeting the first Tuesday in September.

The society adjourned.

GEO. W. PAYNE, Secretary.

BOOK REVIEWS

1921 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 1,318 pages, 392 illustrations. Philadelphia and London. W. B. Saunders Company, 1922. Cloth, $12.00 net.

This new Mayo Clinic Volume (papers of 1921) just published, makes available to the entire medical profession the results of the work being done at the Mayo Clinic and at the Mayo Foundation, University of Minnesota. Its appeal is to surgeon, practitioner and specialist, because virtually every field is considered in some phase. Ther are 1,318 pages of new, live, clinical and research material, with 392 original illustrations.

There are 23 articles on the alimentary canal; 19 on urogenital organs; 7 on the ductless glands; 8 on the blood; 6 on skin and syphilis; 18 on head, trunk, and extremities; 8 on the brain, spinal cord and nerves; 4 on technic in general, and 22 general articles—a total of 115, covering etiology, symptomatology, diagnosis, prognosis, treatment, and operative technic.

Tuberculosis in Infancy and Childhood.—Lectures delivered at the Children's Hospital, Philadelphia, under the Auspices of the Philadelphia Pediatric Society. By J. Claxton Gittings, M.D., professor of pediatrics in the Graduate School of Medicine, University of Pennsylvania; visiting physician at the Children's Hospital, Philadelphia; assistant pediatrist at the University Hospital, and Frank Crozer Knowles, M.D., professor of dermatology in the Jefferson Medical College; clinical professor of dermatology in the Women's Medical College; dermatologist to the Presbyterian and Children's hospital; chief of the skin dispensary in the Pennsylvania Hospital, and Astley P. C. Ashhurst, M. D., associate professor in surgery, school of medicine, University of Pennsylvania. With 23 illustrations. J. B. Lippincott, Publishers, Philadelphia and London. Price, $5.00.

This book is intended for the general practitioner and is based upon the course of lectures which were delivered at the Children's Hospital, Philadelphia.

The subject of tuberuclosis is introduced by a consideration of the various etiological factors—types of tubercle bacilli and their relative importance, childhood infection and immunity, methods of dissemination and modes of infection. A chapter is devoted to the general principles of diagnosis of tuberculosis, from the carefully elicited history to the complete examination, including also the constitutional symptoms which are moreover less common to all forms of the disease. The value of tuberculin in diagnosis is much greater in early life than at any other period, and detailed instructions are given for the application of the various tests. The clinical consideration of specific forms of tuberculosis begins with disease of the cervical nodes, with especial reference to differential diagnosis. Then follow the subjects of tuberculosis of the mouth, respiratory tract, ear, eye, pleura, heart and pericardium, gastro-intestinal tract, peritoneum, the viscera and the genitourinary tract. A chapter is devoted to tuberculous disease of the skin, and another to that of bones and joints, while the greatest space is given to miliary and generalized tuberculosis and meningitis, the most common forms seen in infancy.

Throughout the book the treatment of special forms of tuberculosis is considered seriatim, but the final chapter gives a full and detailed description of the management and treatment of the tuberculosis child.

Sex Searchlights and Sane Sex Ethics.—An Antology of Sex Knowledge. Edited by Dr. Lee Alexander Stone, Chief of Bureau of Hospital Control, Social and Industrial Hygiene, Chicago Health Department; Regional Consultant U. S. Public Health Service; late Official War Department Lecturer and Instructor of Troops in Social Hygiene and Venereal Disease Control; Major M. C. U. S. R.; former Lecturer Medical Sociology, University of Tennessee, College of Medicine (Memphis); Fellow American Medical Association; Chicago Academy of Medicine; member American Institute of Criminal Law and Criminology; American Social Hygiene Associations; former member Vice Commission, Memphis. Author: "Eugenics and Marriage," "The Woman of the Streets," "The Hidden Menace," "Sex Discussion," "An Open Talk With Mothers and Fathers," etc. With special drawings by Don Chilcote. Price, $7.00. Science Publishing Company, Chicago, Unninc., 1922.

The Eighteenth Amendment And the Part Played by Organized Medicine. By Charles Tabar Stout. Mitchell Kennerly, Publishers, New York. Price, $1.50.

KENTUCKY MEDICAL JOURNAL

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EDITORIAL

DR. REED PROPOSES A SCIENTIFIC STUDY OF OUR INSANE POPULATION.

In no State has more progress been made recently in the management of the State institutions for the care of mental defectives than in Kentucky. Hampered as it has been for lack of funds, the State Board of Charities and Corrections has been able to make really remarkable progress.

In this field of medicine, however, as in all others, it is interesting to note the development of the preventive idea. In this issue of the JOURNAL Dr. Charles A. L. Reed, of Cincinnati, one of the ablest statesmen in the profession, makes an appeal for a diagnostic survey of asylum populations by a commission of experts. This suggestion deserves serious consideration. It is in no sense made in a spirit of antagonism to such progressive medical superintendents as our State institutions have, but is directed toward the system that has simply grown up the country over. It is important for the asylum managements to be built with the idea that their patients are of two classes—the curable and incurable. Institutions should be enlarged and the facilities provided so that the curable cases may have everything done for them which modern science has made available. It is important, too, that mental defectives be studied in the light of the revelations of the Society for Mental Hygiene, with a view to preventing probably the majority of them. In order to accomplish these results, however, the difficulty must be recognized that in existing systems there is inadequate room, inadequate equipment and inadeqnate and unpaid personnel to carry out such policy.

Dr. Reed's suggestion that there should be a diagnostic survey of the entire population of the State institutions seems to be simply a proposal to ascertain exactly the extent which focal infections or other causal conditions exist among the inmates of these institutions. It is simply a humane policy. Those so unfortunate as to be epileptics and insane are entitled to such a study because some of them can certainly be relieved. Science demands such an investigation so we can know the exact relationship of focal infections to these cases, the profession is entitled to know from some authoritative source with what it has to deal in encountering this class of cases; the State is entitled to any relief from the increasing financial burden it now carries that may come through the adoption of a preventive and curative as distinguished from a custodial policy.

THE PRESCRIBING OF WHISKY.

The views of the editor of this JOURNAL on the subject of the prescribing of whisky are well known. He does not believe that it is a drug or that it is ever indicated as a medicine in the actual treatment of disease. He does believe that it is a pleasant exhilarant to aged persons and to a very few individuals who suffer from general chronic asthenia. He does not believe that whisky has any food value; that it ever prevented any disease or that it is a stimulant. It is an exhilarating, mild narcotic and if the dose is large it is, of course, depressing like all narcotics.

This is a personal view and every physician in Kentucky has a right to believe just exactly the opposite of this to each of the statements above made, or anything else he wants to, about the uselessness or value of whisky. There is no question but that, under the law at present, any physician who has actually examined the patient and, upon such examination, has determined that he is actually suffering from a condition for which he thinks whisky is useful, has a right to prescribe it in the quantities fixed by law. It is equally unquestionable that the practice which is being indulged in by a few men in many sections of the state of selling prescriptions to all applicants, who pay a fee for it, is nefarious, unprofessional and disgraceful. The action of this small minority is reprehensible in every way, is tending to destroy the standing and influence of the profession, and it must be stopped. Recently, in three different towns of the state, conventions have been held and visitors have been told by the negroes at hotels that all they had to do was go and pay from $2 to $5 to certain physicians for prescriptions for whisky and they would get it. When asked what they must say, they are advised to say they have indigestion or bad cold or threatened with flu or any other trivial lie and that they will be accepted by the physician. We know that such a practice is condemned as utterly outrageous and indefensible by ninety-nine cut of every hundred doctors in Kentucky and we appeal to the profession of the state to take this stand publicly and see that the people know that the men that are engaged in such practices are merely taking the places of that worst element of the old saloon-keepers who forced national prohibition on the country. County societies should take the matter up and reason with those of their members or non-members who are engaged in the practice; and, where evidence is submitted to the State Board of Health which shows that a man is indiscriminately prescribing whisky, or any other medicine which is habit-forming, the Board will summon the physician before it with the view to determining whether his certificate to practice shall be revoked on the ground that he is guilty of such grossly unprofessional conduct as is of a character likely to deceive or defraud the public. It should be made clear that this is no attempt to dictate to physicians how they shall practice medicine nor what medicines they shall prescribe or use in cases of disease. It is simply an announcement of determination to clear the profession of the charges of fraud which are being brought against it.

It must be as well understood that neither the State Board of Health nor the State Medical Association can take action merely on rumors and statements that members of the profession are guilty of such degrading practices. Concrete evidence must be presented in the form of affidavits before any action can be taken, and, of course, each case must be determined by the Board or the Council on such evidence, after a hearing, in which the accused shall be permitted his defense. The medical profession of Kentucky is composed of the finest body of individual citizens of any organization with which we are acquainted. It is clean and square. It does its work in the open and is interested solely in the protection of the health and lives of the citizens of the state and of their restoration to health when they are sick. It is not a law-breaking body and will not countenance law-breaking by its members. We appeal to the newspapers of the state to help in this campaign so that the people will know generally that every doctor who will give them a prescription for whisky or any other medicine without an examination, with or without a fee, is not an honorable member of the great profession we all love.

VACCINATION AGAINST TYPHOID FEVER.

With the approach of the vacation time, the subject of vaccination against typhoid fever should be given careful attention. This matter is of importance at all times; but it is especially necessary that those who plan going to rural districts or traveling in foreign countries, should be vaccinated without fail. The injections should be started early, so that immunity can be established before any possible exposure to infection.

TYPHOID VACCINE

Three injections of typhoid vaccine spaced a week or ten days apart, will produce immunity for a considerable period of time. Although the actual period of protection is not definitely known, revaccination of those who received inoculations should be done after a period of two years has elapsed.

Dosage.—Adults: 1st injection, 500 million bacilli; 2nd and 3rd injections, 1,000 million bacilli. Children: Those weighing 50 pounds, one-half these amounts; others in proportion to weight.

Site of Injection.—The injections may be given subcutaneously at the insertion of the deltoid.

TYPHOID VACCINE COMBINED

Although infections with the paratyphoid organisms are much less common than those with the typhoid bacillus, it has been found advisable, as a general prophylactic measure, to immunize against the entire group with one series of injections. This can be done by using the "triple" or "typhoid vaccine combined," containing in each Cc. 1,000 million typhoid, 750 million paratyphoid A, and 750 million paratyphoid B. bacilli. (*Special Vaccine No. 13 Squibb.*)

Dosage.—1st dose: 500 million B. typhosus; 375 million B. paratyphosus A.; 375 million B. paratyphosus B. 2nd and 3rd doses:

1,000 million B typhosus; 750 million B. paratyphosus A.; 750 million B. paratyphosus B.

REACTIONS

The probability of a reaction should be explained to the subject. After the lapse of several hours, a local and a general reaction of varying intensity may develop. The *local* reaction consists of a red and tender area several inches in diameter; in some instances, it may be more extensive and marked. The local lymph nodes may become enlarged and tender. The *general* reaction consists of malaise, headache and a rise in temperature. There is no cause for alarm in regard to the reactions, either local or general, as they are of no importance except for the discomfort. Severe reactions are met with in less than 1 percent of those injected.

An advantageous time for the injections is about 4 p. m., so that if a reaction occurs it will be while the patient is in bed. For those employed in business, successive Saturdays is a convenient time.

THE DEVELOPMENT OF CLINICS.

Every now and then the JOURNAL receives a letter from some physician asking about the development of clinics under the control of the medical profession. This subject was covered in a remarkable way in the recent article of Dr. Rankin, which was mailed to all the physicians in the State. Practical results are already being brought about at Corbin, Gray, Barbourville and several other places where the County Medical Society has held tuberculosis clinics. At several of these Dr. Lock, the director of the Bureau of Tuberculosis of the State Board of Health, and Dr. Bates, the superintendent of the State Tuberculosis Sanatorium, at Hazelwood, near Louisville, have been present as consultants. It is quite interesting that fully twenty-five per cent of those found to have positive tuberculosis at these clinics had not before consulted a physician. Some of them had been taking one or another patent medicine for their colds or cough and others had been treated by irregulars or not treated at all.

In several other counties orthopedic clinics have been held and the committee of the State Association have been called in consultation to assist in a study of the crippled unfortunates of the community. As a result, remedial measures have been undertaken in a large number of cases which had heretofore been practically helpless and hopeless.

The diagnostic venereal clinics have brought to light hundreds of cases of untreated venereal disease which are simply developing without let or hindrance.

At the invitation of the State Association, the State Board of Health has developed a traveling clinic for trachoma. Most patients having trachoma are pauperized by it or get it because they are pauperized. Dr. Kobert has been with his traveling tent hospital in about forty counties. He has operated on hundreds of cases. Frequently he has found it necessary to remove tonsils and adenoids in order to establish public confidence in his work, and everywhere his success in the work has been measured by the degree of co-operation he has received from the profession. Some of the physicians at first have felt that such a public clinic would interfere with their work, because a large number of cases are operated. Practically all of these, however, are cases that would never have been operated otherwise and in the communities where Dr. Kobert has done his effective work he has shown conclusively the necessity for such work, which must thereafter be done by the neighboring physicians. In one community where he performed 190 operations the physicians stated that in the previous five years they had done only ten. In the six months following Dr. Kobert's visit more than 300 similar cases were operated. This is simply another of those matters of professional organization in which we are all interested.

A third of the people in Kentucky never did pay a doctor's bill because they are too poor to do so. They are frequently poor because of their physical conditions, and it is up to the organized medical profession to correct these conditions and thereby transform our poor white class into a productive citizenship. This can only be done by all pulling together and pulling hard, so that all the people recognize the necessity for medical services and the necessity for popularly supporting the profession which furnishes them.

TEACHING HYGIENE.

The editor has just returned from a visit to the splendid State Normal School, located at Kirksville, Mo., where he had the privilege of speaking to the summer students. It is interesting to note the rapid progress which is being made in teaching teachers how to teach health to their pupils. At the Kirksville institution the health course is really a live one. Dr. Reed, who has charge of it, comes in contact with every student constantly. Careful physical examinations are made and correct advice is given as to the necessity for the correction of defects or the prevention of their development when tendencies are recognized. Applied biology is so taught that the student understands the method of development of a sound mind in a sound body. It was interesting to note the constant advice for careful physical examination and correct diagnosis early in both disease and defective conditions.

We have seen no other institution anywhere that is doing finer work than the Kirksville State Normal School.

DR. FRANK B. WYNN, INDIANAPOLIS.

The announcement of the death of Dr. Frank B. Wynn, of Indianapolis, came as a distinct shock to all who knew him. Dr. Wynn was president of the Appalachian Mountain Climbing Club and fell from a difficult precipice in the Glacier National Park.

To those who have attended the American Medical Association for the past twenty years Dr. Wynn was a familiar figure. He had had charge of the scientific exhibits during that time and had so developed them that they grew from the meager tableful of exhibits at the Columbus meeting to the really post-graduate courses of recent years. For this work he had repeatedly been thanked by the House of Delegates, and on two different occasions was presented with a loving cup. Only a year ago he was elected vice-president of the Association in recognition of his splendid work for it.

In Indiana Dr. Wynn was probably the most influential physician with the exception of Drs. Wishard and Eastman. He was constant in his attendance upon the work of the medical organization; he had the confidence of the public; he was one of the most beloved men in Indianapolis; we have never known a better, cleaner man; he was a Christian gentleman of the highest type. Dr. Wynn was a lover of the great outdoors and while it hurts to think of his wonderful int[illegible]d ability being lost to his fellowmen, [illegible] cannot help feeling that when the call came he would like to have had it come in the great unexplored wilds that he loved.

Fortunately for the profession and for Indiana, Dr. Wynn leaves a son who has just graduated in medicine after the most careful and painstaking training. Upon his shoulders will fall the mantle of a great father, all of whose friends wish him godspeed.

SCIENTIFIC EDITORIAL

THE EAR, NOSE AND THROAT SECTION OF THE A. M. A., AT ST. LOUIS.

This section of the A. M. A. is fast becoming one of the best represented and one of the most powerful in the organization. This is well borne out by the registration this year, more than 600 having attended the two sections; then, further, one of its members, Dr. George E. DeSchweinitz, was the Association's President.

The Ear, Nose and Throat Section was very ably presided over by Dr. J. A. Stucky. The program, covering three days, was indeed very interesting and rather out of the ordinary in that the tonsil was not discussed. However, much time was given to the nasal accessory sinuses, and especially the ethmoids. The consensus of opinion leaning rather to conservative surgery and that much time and patience be exercised if a cure is to be obtained.

Much emphasis was also placed upon post-graduate training and the necessity of a proper foundation before this character of work should be considered by any physician. Short courses were condemned.

Blood clot dressing in mastoid surgery was thoroughly discussed and many believe that it, with some modifications, will be universally adopted, in that it considerably shortens the duration of recovery and, to a decided extent, does away with scar formation.

All in all, this section had one of the most scientific sessions in its history.

The Eye Section was presided over by Nelson Black of Milwaukee. Much time was devoted to fundus changes in cardio-vascular degenerations. Many believe that retinitis is not necessarily diagnostic of a nephritis, but, of more importance, is a warning sign to beware of kidney damage and further eye change. The discussion also disclosed the fact that nothing new, of importance, had been brought out in the past forty or fifty years [illegible] add to the pathological findings or the ophthalmoscopic picture in the retinitis of nephritis. Various theories were suggested that hypertension, cardiac hypertrophy and excess of urea nitrogen in the blood are factors in producing pathological changes in the fundus, but all are still open to question.

Considerable discussion was entered into concerning industrial ophthalmology and much emphasis was placed upon apparently trivial accidents, which occasionally lead to the loss of the eye.

The slit lamp was considered very favorably and no one doubted that it has a place in ophthalmology.

The intra-capsular operation for cataract was mentioned to be condemned as a method of choice in this country. The dangers attending this operation far offset the result occasionally obtained.

As usual, a new method in Squint surgery was presented, this time by Dr. Wilkinson, of Washington. His method has many good points, especially the plate he anchors to the muscle to prevent the eye moving after the operation. However, it appeared to many that the last word had not been said in Squint surgery.

This report would certainly not be complete without a word of praise being given the eye and ear men of St. Louis for the excellent clinics they arranged. Every conceivable operation was done upon the eye and in the hands of very dexterous operators. The nose and throat clinics were made up mostly of tonsillectomy with an occasional sinus opertaoin.

The meeting was truly an instructive one, with enough entertainment having been provided to divert one's mind for the time being, and all who attended must have left St. Louis with many regrets.

Dr. W. B. Chamberlain, of Cleveland, was elected chairman of the Ear, Nose and Throat Section, and Dr. John O. McReynolds, of Dallas, Tex., of the Eye Section for the coming year.

The next meeting will be held in San Francisco. Claude T. Wolfe.

Colorimetric Estimation of Morphine.—A quantitative colorimetric method for the estimation of morphine sulphate in tissues and organic colloidal mixture is described by Gauss. There is a preliminary precipitation of the proteins by means of ten volumes of 3 per cent trichloracetic acid and subsequent extraction with hot chloroform. The color utilized in this reaction is the purple red reaction with Marquis' reagent which is evanescent. The standard color is prepared by adding a known amount of the alkaloidal salt to a known volume of Marquis' reagent, similarly and simultaneously with the preparation of the unknown. By means of this method Gauss has been able to extract quantitatively morphine sulphate from tissues and colloidal solutions in amounts from 0.10 to 50.0 mg. and to determine it colorimetrically in amounts as low as 0.003 mg.

ORIGINAL ARTICLES

FOCAL INFECTION, "EPILEPSY," "INSANITY," ASYLUM REFORM.

Charles A. L. Reed, A.M., M.D.,
Cincinnati, O.

Consultant to the Cincinnati General Hospital; former President American Medical Association and of the Academy of Medicine of Cincinnati; Fellow of the American College of Surgeons.

This review is intended to present (1) a summary of the newer but confirmed knowledge grouped under the title of focal infection; (2) the relation of that knowledge to, more particularly, the problems of the so-called epileptics and the equally so-called insane; (3) the existing state of institutional treatment, or rather care of these unfortunate classes; (4) a plea for such asylum reform as will give them the benefit of the broader humanity embraced in modern science and thus, in certain measure, relieve the taxpayers of one of their heaviest burdens.

The adjective "so-called" is used to emphasize the fact that both "epilepsy" and "insanity" are terms that convey no accurate meaning, that have come to have connotations that are at once misleading and barbaric, and that they ought, therefore, to be abandoned. They are here retained only because they are as yet in use in all but advanced scientific circles. It was chiefly the use of them with their cruel significance that led to the inhuman abuses that were startlingly exposed fifty or more years ago by Charles Dickens and Charles Reade. The influence of popular fiction in moulding public opinion and effecting needed reform was never more strikingly shown since the day when Jean Jacques Rousseau laid the foundations for the French Revolution. All over England these sufferers were taken from the streets, from the barred and grated chambers of their homes, from the almshouses, from the unspeakable prisons, and placed in well constructed, well conducted, but purely custodial asylums. The movement was taken up in America by a woman of precious memory, Dorothy Dix, who instigated, first, the New Jersey State Hospital, and later similar institutions in twenty-one states. All states now have them. But there at the custodial stage the reform stopped, and there it remained until today, when, the problem having been taken up by intellects not under the tyranny of preconceptions, traditions and superstitions imposed by the words 'epilepsy'' and ''insanity,'' the dilemma having been approached from the view-point of this newer knowledge, we find ourselves at the beginning of a new and more hopeful era.

''The Newer Knowledge.''—It may be said that the knowledge of focal infection, popularly developed in this country largely by Billings, has had a more revolutionary effect upon the interpretation of disease and the development of its rational treatment, than has any revelation of truth since the great underlying discovery of germs by Pasteur and the application of that truth to surgery by Lister. This newer knowledge may be summarized as follows:

1. By focal infection is meant the invasion of the body by disease-producing germs which, becoming established in a tissue, organ or cavity, there form a ''focus'' from which the germs themselves, or the toxins they generate, or both, are persistently absorbed into the blood stream and thus infect the general system.

2. There are three chief localities in which these foci develop—namely, the teeth, the tonsils and the intestines. The intestines possess myriad associated glands, each gland being either an active or a potential focus. As the intestines may become infected without primary infection of the teeth or tonsils, as they are always infected when the teeth and tonsils are infected, and as they often remain infected after the teeth and tonsils have been removed, it follows that, of the three, the intestines are the most frequent, as they are the most extensive and the most persistent seat of focal infection. Any other organ or structure of the body, notably the sinuses and cavities of the head and the generative organs of both sexes, may be the seat of similarly focalized and persistently established infection. Secondary foci may become established and be as persistent and as mischievous as the primary seats of invasion.

3. The amount of absorption from a given focus is relative to (a) the size and location of the focus, and (b) the pressure to which its contents are subjected.

4. The effect of the absorption from any given focus is (a) not modified by the location of the focus or (b) by the amount absorbed, but (c) depends upon the species of the germ or (d) upon different strains of the same germ and upon (e) the resistance of the individual.

5. The symptoms of focal infection are (a) diverse and variable according to the dominant organism or the strain of the dominant organism absorbed and the resistance, general or localized, of the individual, and are (b) general, such as physical weakness, insomnia, lowered bodily temperature, mental depression generally associated with constipation, with or without indigestion, and irregular heart action; or (c) specific, such as ulcer of the stomach, infection of the gall-bladder, or of the appendix or convulsions; (d) they sometimes occur as definite complexes, when they are called ''diseases,'' such as ''Bright's disease,'' ''Glenard's disease,'' ''Addison's disease,'' or such other ''diseases'' as neuralgia, neuritis, rheumatism, arthritis, diabetes, thyroidism, chorea, ''epilepsy'' and ''insanity' 'and many others; (e) the general underlying systemic condition in all these so-called diseases is that of a poisoned blood stream, or toxemia.

The practical application of these principles will be further considered under three general heads, namely, (1) general toxemia, (2) chronic convulsive toxemia (epilepsy), and (3) toxemia psychosis (functional insanity).

General Toxemia.—The evolution of these principles began many years ago in France, where Bouchard$_1$ (1887) first recognized the relation of intestinal states to toxemia under the title of auto-intoxication, and where Glenard$_2$ (1899) first described displacements of the abdominal organs as the underlying causative condition.

During some twenty-five years' experience in abdominal surgery the attention of the writer of this review was frequently arrested by the revelation of these displacements, especially involving the stomach and intestines, in the course of operations for other conditions. In common with the profession at that time, he attached no practical importance to these displacements until, finally, the persistence of toxic symptoms following surgical convalescence forced him to look upon them as the efficient cause of the continued illness. Beginning in 1906, attempts to treat these conditions by non-surgical means were carried on without success. He accordingly, early in 1911, began their surgical correction as the only efficient way of dealing with them. The effort was followed by eminently satisfactory results. Early in the course of this experience, at first confined to non-convulsive cases, it was observed and pointed out that the flora of the intestines abounded in disease-producing germs; that these germs invaded and became established in the glands of the intestines and the mesenteric glands in communication with the intestines; that ulcerations of the intestine frequently existed; that these conditions were corrected by the correction of the displacements; and that, following such correction, a vast majority of the cases recovered their general health. This early observation has been amply confirmed by several hundred cases of non-convulsive toxemia similarly treated during the last eleven years.

"*Epilepsy*."—It was not long, however, before certain cases, then called epilepsy but that the writer soon learned to designate as chronic convulsive toxemia, presented themselves for relief from obstinate constipation and associated constitutional symptoms other than convulsions. The convulsive features were ignored and operation was done on them, as in all subsequent cases, for relief of the anatomical conditions. The patients recovered surgically, following which not only the general but the convulsive symptoms disappeared. The publication of these cases$_3$ resulted in an unexpectedly large experience embracing in excess of a thousand cases. In all the diagnosis of abdominal conditions was confirmed by x-ray plates, aggregating several thousand, and in several hundred by surgical exploration of the abdomen. Analytical statistics covering the first decade of this work are in preparation and will shortly be submitted to the profession. In the meantime several tentative reports have been published in the medical press.$_4$ The whole experience has resulted in the following conclusions:

1. There is no evidence of the hereditary transmission of "epilepsy" as such.
2. Constipation is the most constant associated symptom, and is a condition which exerts a secondary causative influence on absorption from the intestines.
3. Visceral displacements, developed before the convulsions, exist in all cases.
4. Infection with enlargements of the follicles of the intestines and of the underlying lymphatics (foci of infection) are demonstrable in all cases subjected to surgical exploration and examined for the purpose.
5. Infection of the intestines may be and generally is primary, but it may be and frequently is secondary to primary infection of the teeth, tonsils or accessory sinuses.
6. Removal of all foci of infection results in the cure of cases in which delay before operation has not resulted in secondary dedegenerative changes (functional psychoses), establishment of a *status toxicus*. By a *status toxicus* is meant the saturation of the system with the toxic products of primary infection, and, as often occurs in neglected cases, the development of multiple, remote and surgically inaccessible secondary foci.
7. Cases of "insanity" not associated with degenrative changes (functional psychoses), occurring incidentally in both the non-convulsive and the convulsive groups, have presented the same gross pathology and have yielded to the same treatment at the hands of the writer.

"*Insanity*."—The confirmation of the foregoing findings and the justification of surgical treatment of these cases of both "epi lpesy" and "insanity" have come about primarily through the courageous initiative taken at the New Jersey State Hospital. This large institution has long been devoted to the care and is now devoted to the treatment of the "insane," with epileptics" as incidental cases. It is a matter of poetic interest that there, where Dorothy Dix inaugurated the era of humane care, Dr. Henry A. Cotton has now inaugurated the era of the rational treatment of these unfortunate sufferers. There, in 1918, he adopted a practice which, so far as published reports would indicate, was then unique among the institutions of the country. He first made a scientific diagnostic study of his cases, and, secondly, he adopted treatment on the basis of his findings, which always lead to focal infection as the basic pathology. He threw away physical restraint and treated his patients as human beings with sick bodies for whom something curative might be done. He removed the foci of infection whether in teeth, tonsils, intestines or elsewhere. In doing so he found, in both "epileptics" and the functionally "insane," the same gross pathology—displacements of the abdominal viscera, infected intestines, infected lymphatics, often associated with bad teeth and bad tonsils—that the writer had found and described four years earlier. Similar confirmatory observations, it is reported, are being made at the Norwich (Conn.) State Hospital, the Raleigh (N. C.) State Hospital, the Norristown (Pa.) State Hospital, and installations are being made for the same purpose in the National Sanitarium for Insane Soldiers. It is known that, as long as six years ago, in at least one of the largest institutions for 'epileptics," namely, Craiag Colony at Sonyea, N. Y., similar observations with similarly satisfactory results were realized by progressive members of the staff, but that according to reliable information, the facts were denied publicity and the practice was suppressed by sinister professional influence exercised through the governing body.

The Specific Factor.—It has been noted above that the same pathology exists in non-convulsive toxemia, in convulsive toxemia and in psychotic toxemia. It is also a matter of frequent observation that infected tonsils, infected teeth and infected intestines may exist without producing any of the foregoing symptoms to a degree that amounts to actual illness or incapacity. If infection is the common cause, why this variation in its effects? This dilemma was presented to the writer in his early experience and seemed logically to call for the existence of special organisms for special effects, or, in other words, a specific factor. Diligent search was made, and it was thought that one such special organism, the one relating to "epilepsy," had been isolated, and, to stimulate research by others, the observation was tentatively published by the writer. He subsequently proved that the observation was erroneous and publicly withdrew his statement, but in doing so stated he did not withdraw the principle of specific infection which remained logically sound. The necessity for that principle is still inherent in the conditions. This necessity has been met through the masterly researches and generally accepted demonstrations by Rosenow.[5]

His conclusions, briefly summarized, are as follows: (1) Certain disease-producing bacteria, e. g., the bacillus *coli communis* and the streptococcus,introduced into the blood stream, "select" certain structures or organs in and upon which they become active ;(2) this "selection" is not based upon any peculiarity of form, but upon the biologic strain of the organism concerned; (3) this strain is, in turn, intensified, if not dependent upon the environment to which the organism has become habituated. Thus, for example, organisms derived from a gastric ulcer, introduced into the circulation of an animal, tend to induce gastric ulcer in the animal thus inoculated. The same is true with respect to infection of the gall bladder, of the vermiform appendix, of joints, of teeth and of tonsils, while organisms derived from "epileptics" produce the convulsions of "epilepsy." It would seem that the nature and limitations of animal experimentation have precluded similar studies with respect to the psychoses, or "insanity." But these revelations, at the hands of the leading bacteriological authority of America, with the already demonstrated value of their practical application, are of momentous and hopeful concern, not only to a large number of institutionalized cases, but to a large proportion of the "epileptics" and "insane" not unhappily incarcerated in the purely custodial asylums of the land.

Treatment.—All phenomena that we call disease are the result of definite, even if unascertained, causes. This law of cause and effect holds true with respect to both "epilepsy" and "insanity": establish the cause, the effect follows; remove the cause, the effect subsides—unless, unfortunately, through neglect and delay, there shall have occurred irreparable destruction of tissue. The practical application of this law in the treatment of "epileptics" and the "insane," based upon focal infections as the primary cause, at the hands of many practitioners and in the more progressive hospitals, has resulted in so many cures of record where cures would not otherwise have been realized, that the principle has passed beyond the stage of both experiment and controversy. The rapidly evolving details of treatment still remain in dispute, but are undergoing rapid adjustment. It is not intended to discuss these details or their statistical results in this connection, but to urge that the revelations here recorded as to underlying and causative conditions justify the demand for the scientific investigation of the fundamental facts as they exist in the more than a third of a million people now confined in the hundreds of state hospitals of the United States. The general medical profession may be relied upon to develop details of treatment or to adopt those already developed by its leaders, as soon as the lines of professional responsibility are thus brought to the intelligent comprehension of the public.

Conditions in the Asylums.—Many states, with institutions originally called asylums for both "epileptics" and the "insane," evidently ashamed of their purely custodial character, have changed their names from asylums to hospitals, but in doing so have failed to change their real nature. The medical and executive functions of their superintendents are combined. The medical staffs are too generally political appointments and too frequently are both incompetent in professional qualifications and inadequate in numbers. One medical attendant to a thousand patients, or prisoners, is not an unknown proportion. As a result, the careful study of the individual patient is a physical impossibility, and even intercurrent acute illnesses frequently go undetected and untreated. The inmates merely are herded, housed, fed, clothed and worked, often at hurtful tasks. The institutions are overcrowded. They are for the most part destitute of modern hospital equipment, such as laboratories and operating rooms. As a consequence, careful diagnostic study along the lines of the new knowledge, has been and remains impossible in all but a few progressive institutions. The writer has at hand an authentic report of a mild psychotic case, so mild that the patient might well have been at home, that has been incarcerated for thirty-six consecutive years without ever having been scientifically examined. As the writer recently declared before the Neurological Section of the American Medical Association, probably not 2 per cent of the American asylum population has ever been examined by methods calculated to find out what really is the matter with them, and, therefore, what really ought to be done for them. Members of the medical profession, with private hospitals or private practices, or public utterances to defend, all based upon non-progressive views, have at times found their way into the directorates of state asylums, where, of course, their influence has been reactionary. Treatment, in the sense of attempting to cure these patients, is therefore unknown in this particular type of institution. The result is not only an inhuman neglect of curable cases—a neglect calculated sooner or later to put them in the incurable classes—but there is a perpetuation of the unhappiness of millions of relatives and friends, while there is a continual piling up of the burden on the taxpayers.

The Beginning of Reform.—These facts indicate an urgent need that must lead to a crying demand for reform. That reform must begin by ascertaining the basic truth, and the basic truth can be ascertained only through a diagnostic survey of entire asylum populations. This survey can be made only by a competent and adequately equipped diagnostic commission, made up of persons technically qualified to conduct the various branches of the examination, who are even circumstantially free from bias arising from some fancied necessity to defend preconceived views, previous practices or vested interests. The few progressive men at the head of these institutions, while welcoming such a commission, ought to be spared from the determination of facts having a bearing on their own previous declarations; the non-progressives or reactionaries, for the same reason, are entitled to the same consideration.

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2. Glenard, Franz: Les ptoses viscerales. Paris, 1899.

3. Reed, Charles A. L.: "Constipation and Epilepsy," Lancet-Clinic, July 25, 1914.

4. Reed, Charles A. L. Under various titles: Proceedings of National Education Association, 1912, Journal Am. Medical Assn., March 28, 1914; Journal Am. Medical Assn., August 8, 1914; Journal Am. Medical Assn., March 27, 1915; Journal Am. Medical Assn., January 29, 1916; Journal of the Iowa State Medical Assn., April, 1916; Journal of the Am. Medical Assn., September 20, 1916; read before the Academy of Medicine, Cincinnati, November 13, 1916; Medical Herald, Kansas City, St. Joseph, Mo., February, 1917; Journal Am., Medical Assn., June 1, 1918; Transactions of the Southern Surgical Assn., 1918; West Virginia State Medical Assn., May 22, 1919.

5. Rosenow, E. C.: "Elective Localization of Bacteria in Diseases of the Nervous System," September, 1916; "Studies on Elective Localization;" Journal of Dental Research, Vol. 1, No. 3, September, 1916; "Tho Newer Bacteriology of Various Infections as Determined by various Methods," Journal Am. Medical Assn., 1914, lxiii., p. 209, et seq.

SALIVARY FISTULA: CASE REPORT.*

By Samuel G. Dabney, Louisville.

A man was sent to me yesterday who had a small opening in his cheek (outside) through which saliva was being discharged. When asked about the history of the case he said about a year ago he had gotten a splinter in the inside of his cheek and following this there was considerable swelling. Roentgen-ray examination had been made recently, but no foreign body was shown in the cheek.

I have never seen a case of salivary fistula on the outside of the cheek before. I told the doctor who sent the patient to me that the case was not quite in my line, that I did not know anything about it, and suggested that the patient consult a general surgeon.

I suppose if it is possible to do so the best thing would be to introduce a probe into the duct inside the cheek and make a passage for the fluid in that way. I would like some of the gentlemen who know more about the subject to tell me something about it. It does not seem to me that cases of that kind belong to the throat specialist. I have often removed calculi from Stone's duct, but have never seen a case like this before.

DISCUSSION:

J. Garland Sherrill: Cases such as Dr. Dabney has described occur rather infrequently, and we are always glad when the other fellow sees them. Sometimes the duct can be probed and the patient will get well, but as a rule complete dissection of the fistula is required with implantation of the end of the duct into the mucous surface. Infection usually develops and gives rise to further trouble. The treatment of such cases is not altogether satisfactory.

L. W. Frank: As Dr. Sherrilll has said, cases such as Dr. Dabney has described are good ones to "wish on the other fellow." As a rule salivary fistulae are difficult to cure. I agree with Dr. Sherrill that dissection of the fistulous tract and implantation of the duct of Steno into the cheek will be found necessary in most instances. Where the duct has been injured there is usually scar tissue and obstruction, and healing seldom occurs unless complete dissection is made and the duct of Steno transplanted into the cheek.

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*Clinical report before the Louisville Medico-Chirurgical Society.

IMMEDIATE REPAIR OF LACERATIONS VERSUS DELAY.*

By Alice N. Pickett, Louisville.

Dr. Edward P. Davis, of Philadelphia, classifies the repair of lacerations as to time into immediate, intermediate and delay. By immediate he means those repairs done at the time of delivery or within the first thirty-six hours thereafter. By intermediate he means those done within from five to ten days after delivery; and by delay, those postponed for months or even years.

If the census were taken here today I expect we would find an overwhelming percentage of us advocating immediate repair, and in such a stand we are in good company. Dr. Williams of Hopkins says: "The immediate closure of perineal lacerations by sutures is urgently indicated." Dr. DeLee, of Chicago, says: "Lacerations in clean cases are always to be repaired at once." Dr. Edward Davis, of Philadelphia, and Dr. Asa Davis, of New York, are of the same opinion.

Dr. Shears, of the New York Polyclinic, sums up the situation as follows: "When should the lacerations be repaired? At once, if circumstances are favorable, i. e., if the patient's condition is good, and if the operator is competent for the task. Many an operation has been omitted or imperfectly performed because the patient's general condition was not good, or the necessary assistance was not at hand for the attendant distrusted his ability to perform a difficult perineorrhaphy, and perhaps supervise the administration of an anesthetic when exhausted by anxiety or loss of sleep. In a case like this it is far better, after irrigation of the vulva and covering the parts with a sterile dressing carefully held in place, to wait from 12 to 36 hours. The patient will then have recovered from shock, and the operation can be carefully and deliberately performed, under ether, if necessary, by a good light and with the necessary assistants."

I believe in the above statement Dr. Shears has voiced the opinion of the great majority of the British and American profession; that is, we advocate repair on the delivery table in clean cases when the woman's condition is good, and when we believe we are so equipped as to resonably expect good results. When such favorable conditions do not exist we believe the repairs are best done within 36 hours, which repairs we can justly classify as immediate.

As far as I have been able to find out Dr. Edward Cooke Hirst, of the University of Pennsylvania is the one outstanding American opponent to this teaching. He never under any circumstances does an immediate repair. Instead he waits until between the fifth and seventh days after the delivery; that is, his repairs are classified as intermediate.

He is earnestly opposed to immediate repair because of the oedema and bruising of the parts, the profuse discharge which obscures his field, the difficulty of estimating the extent of injury and of approximating the turn surfaces and last, but not least, the impossibility of repairing the cervix at this time without unduly exposing the patient to the danger of infection.

No intelligent physician can refuse to admit that all these points of Dr. Hirst's are well taken. I believe we will all agree that the operator who does his repair of an extensive laceration after seven days has some advantage over the operator doing the same operation immediately after delivery. What then are the objections to Dr. Hirst's delay? In the first place, the woman's convalescence is interrupeted just when she is beginning to pull up. The nerve strain of having to face an operation and an anesthetic so soon after the ordeal of childbirth is considerable. We realize something of this strain as we recall the days of worry and apprehension so many women go through with at the thought of so slight a procedure as that of removing stitches. Moreover, the milk supply is temporarily interfered with at a time when the baby has not yet regained the initial three days loss in weight. There is more danger of infection from the raw surfaces and even on the seventh day the field of operation is not free from discharge. Lastly, such a routine is a tremendous expense as to time, labor and supplies to any hospital or team of workers. It seems to me that it has only one real advantage, and that is, its making possible the repair of the cervix which should never be attempted immediately after the delivery, except for the control of hemorrhage.

When one has learned in the hard school of experience about what tension to employ in the tying of sutures and the proper suture material to use, he has not a great deal to fear from oedema. As to the discharge, this can absolutely be blocked back from the field of operation by inserting a large, firm roll of gauze or gauze and cotton high into the vagina against the cervix. With such a pad in place, and with the patient drawn to the edge of the table, the extent of the injury can usually be definitely determined. This is best done by inserting both index fingers into the vagina at the same time and spreading wide the vaginal walls. When these precautions are taken by an obstetrician of fair experience he expects and usually gets good union. It would seem better economy to do a secondary repair on the occasional case in which we fail to get perfect union than to subject every woman having a laceration of any degree whatsoever to an operation and an anesthetic in the midst of her puerperium.

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*Read before the Kentucky State Medical Association, Louisville, September 19, 20, 21, 22, 1921.

Now as to the delayed repairs—those postponed until after the puerperium, sometimes for months or even for the child bearing period. I do not think it just to include in this group those cases in which immediate repair is necessarily delayed because of infection, grave maternal illness, or other conditions rendering a plastic operation a real menace at or immediately following delivery. These unfortunate cases are in a class of their own. Not many of us would confess to following as a routine the 'jungle practice of making no attempt at repair at any time during the puerperium, and yet there must be many doctors still amongst us who practice medicine after this fashion. How else are we to explain the great numbers of woman dragging about in all the varying stages of retroversion, prolapse, and procedential, due to perineal lacerations. As a matter of fact, many of the wretched results following childbirth, the whole country over, are due to carelessness and lack of conscience on the part of our doctors, rather than to bad judgment. If all of the profession made an honest attempt to care for the mothers of our land as they deserve to be cared for, Dr. Polak, of Brooklyn, would not be asking to our everlasting disgrace, "Why should the mortality from childbirth place the United States fourteenth on the list among the leading sixteen civilized nations?" I would answer, America, both profession and laity, needs to develop an obstetrical conscience. Having this, all other things would be added unto us.

DISCUSSION:

W. B. Doherty, Louisville: I have had good luck in fifty years in the practice of medicine when I tell you truthfully I have not had a laceration into the rectum. Now, this may be an old joke, but when a doctor says that he has never had a laceration of the perineum he is mistaken. I have had any number of them. In probably 50 per cent of the cases I have delivered I have had a laceration of the perineum, but these lacerations were of the first and second degrees.

This is an excellent paper, and I am personally thankful to Dr. Pickett for presenting it,

As one who has devoted considerable time and attention to obstetrics, with your kind permission and indulgence, I will not say anything regarding the treatment of lacerations of the perineum, except that I repair them immediately, but should rather dwell on the prevention, as well as the causes, of these lacerations.

Our profession has progressed by leaps and bounds in the last fifty years, but I regret to say that in the obstetrical field we have retrograded, and the women of today are not so likely to be delivered successfully and properly as they were thirty or forty years ago, owing to the fact that these women are often the victims of spectacular faddists, many of whom expedite labor with disastrous results.

A few years ago twilight sleep was thrust upon the profession by magazine and newspaper publicity, and in a short time its dangers were so great that it was discarded. Then came the use of pituitrin. We were told by some of the manufacturers that 1 c.c.. of pituitrin would produce contractions of the uterus, lasting several minutes; tonic, not clonic, contractions, and what was the result? Twenty women were reported as having died from rupture of the uterus in 1919 and many children asphyxiated by the use of pituitrin before it was stopped, or its dosage diminished. Those who now use it give only one-half or one-fourth of a c.c. Many physicians do not give it at all when there is a child in the uterus, owing to its great danger.

Next comes Cesarean section. The average young surgeon with the surgical bee buzzing in his bonnet is fond of orientation and likes to deliver a woman by Cesarean section. These fads have had their day, and what has been the result? The mortality and morbidity of women have increased and more children asphyxiated. Let me emphasize this fact, that the average American white girl has the best pelvis of any other girl in the world. She has less rickets. She is better developed, better cared for, better fed, and has less pelvic deformity than her European sister. Why should so many women be subjected to Cesarean section?

We now come to the latest fad that has been thrust upon the profession. A gentleman of high attainments in the profession of medicine, and an eminent teacher of obstetrics, tells us that in order to relieve suffering we should change a cephalic presentation into a podalic, turning the child and doing quick work. What is the result? More asphyxiated children and more women injured.

What is the cause of so much laceration, may I ask? It is due to the fact that many women are improperly and irrationally delivered. Why should a young woman be delivered on her back in the perineal stage of labor when the force of uterine contractions is not in that direction, but in the axis of the strait through which the child is passing at the time. If one delivers a woman in the perineal stage in the Sims position and delivers her slowly there will not be as many lacerations. Notwithstanding the fact that every textbook in this country and in Europe recommends the side position, it is not carried out. In the British Dominions students are never taught to deliver women on their backs in the perineal stage.

With regard to forceps: Unfortunately rapid extraction is too often resorted to, instead of slow delivery by traction being made for one half minute and unlocking the blades of the forceps for another half minute, thereby preventing continuous compression of the child's head, resulting in fewer asphyxiated children and a less number of perineal lacerations. When the coast is clear, os dilated and membranes ruptured, rational forceps delivery is much safer to woman and child than to rely on the uncertain action and dosage of pituitrin. The use of pituitrin produces tonic, often uncontrollable contractions of the uterus, while with the forceps the visafronte lessens the dangerous force·of the visatergo produced by pituitrin.

Edward Speidel, Louisville: Dr. Pickett gave a number of indications and contraindications for the immediate repair of lacerations of the perineum. She failed to mention the one condition, however, that induced Hirst to publish his paper on this subject, and that was this: In examining perineums of patients after labor operated upon by competent obstetricians, including himself, and he is known as one of the most competent obstetricians, he was astonished to find the poor results of such immediate repair, and that induced him to start the dictum of repairing the perineum seven days after the birth of the child, and I think some of us have seen patients whom we have delivered where perineal lacerations were repaired immediately, and have been astonishd at the poor results we have attained under these circumstances: consequently I take it, from as high an authority as Hirst, that immediate repair of lacerated perineum does not, except in rare instances, bring satisfactory results. The only question then arises is as to the practicabiliity of delaying the repair of the perineum until seven days after the birth of the child. I think it is clear to nearly all of us that waiting as long as that to repair the perineum would be impractical. If the obstetrician is worn out in consequence of conducting cases of labor in the night and wishes to defer repair for ten or twelve hours, there is something in that. In the home immediate repair is necessary because there, with the imperfect nursing, you have under the best of circumstances to leave the lochial discharge flow over the wound with urine and feces in close proximity would be a very patent source of infection. Furthermore, I believe if the average doctor should go back to the home of a patient whom he has delivered in a private house seven days later with an assistant and an anesthetist to repair such a laceration it would injure his reputation very seriously, consequently to me it seems impractical to do this in a private home. In a hospital, where we have everything at hand, trained nurses, and so on, the physician has plenty of assistants, has good light, and can repair lacerations under these circumstances just as he would do a secondary operation. Perhaps the bad results of lacerations are due to the technic that was formerly employed. The technic of trying to repair these lacerations by through and through sutures of silkworm gut is not the proper one. It is claimed that in these lacerations the tissues are obscured in consequence of edema and bruising. That need not be the case. The kind of laceration that is apt to be edematous is the normally conducted labor in which the head is allowed to pound back and forth upon the perineal tissues, and in that way the tissues are softened by the edema, and the elasticity of the perineum occurs in consequence of this edema. But fortunately it is in these cases that you have a slight or median laceration of the perineum. If in such cases the tissues are brought together by two or three continuous sutures of chromic catgut, there is no contraction of the edematous part, and the chances are you will have a fair result. The more serious lacerations occur in forceps deliveries. There you have a ragged tear; you do not have edematous structures, and in these cases the tissues should be brought in apposition layer by layer with interrupted sutures, then the results should be good.

The keynote is the prevention of laceration, and we have several means of preventing lacerations, either by the use of a properly performed episiotomy, or what I think is more desirable for all of us, the Potter ironing out of the perineum as practiced in the Potter version which will be the subject of my paper.

John W. Price, Jr., Louisville: There is one class of lacerations which I think we should consider, which may be repaired immediately or repair delayed. I have in mind the repair of a laceration of the levator ani muscle without any tearing of the mucous membrane. I believe in those cases which occur in the home where operative facilities are not perfect there should be delay in the repair. These cases should be taken to a hospital either ten days or two weeks afterward, and the repair performed under proper circumstances. Where the tear is complete through the mucosa and through the levator ani muscle, the repair should be done immediately in the home, and the best technic used that the operator has at his command. I think there is a distinction between these two classes of cases, and I wish to bring it up for discussion.

David W. Gaddie, Hodgenville: It seems to me the question before us for discussion is whether or not it is advisable to repair lacerations immediately or to wait a few days or defer the repair of them indefinitely. I find many of you in discussing this question urge that we take our patients to a hospital. Do you remember, gentlemen, that 75 per cent of the women who give birth to babies in Kentucky have no hospital facilities available? It is not a question of hospital, but a question of what are you going to do with these women now? We all have lacerations in our practices. Some of us neglect them; some of us repair them at once; some of us never repair them. I take the position that immediate repair is of paramount importance. The attending physician, if he be in the country and far away from another physician whom he can call in, can do this if he will do it; he can do this operation, if prepared, immediately without an anesthetic, because the sensibility of the patient is so obtunded that she can scarcely notice or feel the passing through of the needle and thread. Therefore, gentlemen, I think it highly important that we do not defer repairing these lacerations, but that we repair them at once, do it ourselves without sending for anybody. I am decidedly in favor of having an assistant when you can have him, in order to give these women ether or chloroform if conditions demand for the purpose of repairing these lacerations. Any physician with common sense can repair a laceration of the perineum, and do it as nicely as he can do it with the assistance of another, and do it without anesthesia under ordinary conditions. By all means, gentlemen, do your repair work before leaving the bedside.

Alice Pickett, Louisville (closing): One of the most important problems confronting us is when we have a woman who has neither had a repair of her lacerated perineum or who has had an unsatisfactory one. With all our care we do not get good union. Let us suppose we put stitches in at delivery. Suppose on the fourth or the tenth day we find the woman has imperfect or nonunion, what are we going to do? Dr. Williams says that these women should be repaired before they are dismissed from treatment; that we should never take our hands off of such women until the repair is made. If we do not do this these women drift away and they are lost from our control, and they will constitute one of the end results we deplore so much. On the other hand, Dr. De Lee says, if the woman is young and strong and is suffering from a laceration, to leave her alone for a few years. He does not say after the child-bearing period, but he must mean that, or after she has had several children. His reason for that is, even after the best technic, after a secondary pernieorrhaphy there is found to be more or less scar tissue. When a delivery follows this operation the scar tissue does not yield as normal tissue will, and the chances are you will have a secondary tearing which is worse than the first. That sounds like pretty good sense, but after our discussion of yesterday afternoon on carcinoma when we learned that an enormous proportion of carcinoma developing in the cervix develops in women who have borne children, together with the thought that the cancer might be due to lacerations received in childbirth, it makes us a little bit weary in following Dr. De Lee in waiting so long to do secondary repair.

UTERINE PROLAPSE WITH ASSOCIATED PELVIC RELAXATION.*

By C. G. Arnold, Louisville.

Anatomically it may be interesting to observe that the uterus is a movable intra-pelvic organ, lying in a position of "mobile equilibrium" between the urinary bladder and the rectum, anchored below in the vaginal vault about one inch from the junction of the second and third sacral vertebrae.

The long axis of the uterine body is directed forward and upward, forming a right angle with the long axis of the vagina, and is maintained in that position by the intra-pelvic uterine liagments and the pelvic floor. The ligaments are physiologically in a state of relaxation, i. e., they do not actually fix the uterus but merely limit its normal range of movement. The essential intra-pelvic uterine supports are those which maintain the fundus in the anterior and the cervix in the posterior aspect of the pelvis; the attachments of the vesico-uterine peritoneal folds and round ligaments serve to hold the fundus behind the symphysis, while the sarco-uterine ligaments preserve the posterior relation of the cervix. The pelvic floor not only holds the lower portion of the rectum and vagina forward in juxtaposition to the symphysis pubis, but forms a sling which closes the pelvic outlet and affords support to the organs above.

Uterine prolapse is really a form of hernia in which the uterus (usually accompanied by the vaginal walls, urinary bladder and rectum) is displaced downward nearly to or even through the vaginal opening. For this to occur there must necessarily exist insufficient intra-pelvic uterine support associated with weakness of the pelvic floor, permitting the vaginal and rectal openings—the weak places in the pelvic diaphragm—to assume a position in the line of direct intra-abdominal downward pressure, the weight from above formedly supported by muscles and fascia being immediately over the opening.

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*Read before the Jefferson County Medical Society.

Uterine prolapse developing secondary to and accompanying intra-pelvic tumors and inflammatory lesions, and retro-displacements of the fundus with undescended cervix, are not considered to be within the scope of this paper. In the former removal of the cause is usually sufficient to produce a cure, while retro-displacements can be corrected by almost any form of uterine ventro-suspension.

For the correction of uterine prolapse there are two rational indications: First, to fix the upper extremity of the vagina, together with the cervix uteri, in its normal location in the posterior portion of the pelvis within one inch of the junction of the second and third sacral vertebrae. Second, to bring the lower extremity of the vagina, with the vaginal opening, forward so its posterior wall will be against the symphysis pubis. The fulfillment of these two indications will restore the normal obliquity of the vagina, and hold the cervix so far backward toward the sacrum that the corpus uteri cannot prolapse, but must be directed forward in its normal anteverted position of "mobile equilibrium." These indications will not be fulfilled by any operation having for its object suspension of the uterus from, or fastening it to, the abdominal wall. This procedure is both physiologically and mechanically incorrect, in that it puts muscular tissue on constant tension and places the uterus in a position approximately parallel to the vaginal canal instead of at a right angle.

In cases of mild prolapse, usually occurring during the child-bearing period, shortening the sacro-uterine ligaments to draw the cervix upward and backward into its normal position, with some form of operation upon the round ligaments to maintain the uterus in anterversion, will prove efficient.

In well-marked uterine prolapse, associated with extensive cystocele, the interposition operation affords excellent results where the uterus is firm and does not protrude from the vagina in the anteverted position at operation. Such cases are usually noted in women between the ages of forty and fifty years. If the prolapse occurs before advent of the menopause it is advisable to divide and invaginate the oviducts to prevent future pregnancy. In this type of operation the urinary bladder is separated from the anterior vaginal wall and the uterus rotated to anteverted position under the bladder which rests upon its posterior wall.

In that larger group of cases of third and fourth degree prolapse, with atrophied uterus which completely protrudes from the vagina in the anteverted position, the ordinary interposition operation is contra-indicated. In such cases an efficient method is to perform vaginal hysterectomy with interposition of the broad and round ligaments according to the technique first described by Dr. C. H. Mayo.

The cervix is grasped with volsellum forceps and drawn well from the vagina. A pear-shaped incision is then made with its apex one and a half inches below the external urinary meatus extending along each side of the cystocele and around the cervix. The sides of the incision are grasped and the vaginal wall separated from the bladder by gauze dissection. The apex of the vaginal flap attached to the anterior lip of the cervix is turned downward and the bladder rapidly separated by gauze dissection from the anterior aspect of the uterus. When the peritoneal fold is reached it is divided laterally by incision. Gauze dissection now separates the posterior vaginal wall from the uterus on each side outward to the broad ligaments. Sharp fork retractors are now used to draw the fundus of the uterus through the incision, as in an ordinary hysterectomy, and the cervix is restored within the vagina. The broad ligaments are fully unfolded on either side. Unless diseased the ovaries are allowed to remain undisturbed. Heavy hysterectomy forceps with long blades now grasp each broad ligament. The uterus is divided half an inch from the forceps and two others applied (one on each side) their tips embracing the cul-de-sac behind the cervix. The uterus is then competely removed. The forceps (two on each side) are now approximated laterally and a running mattress suture of chromic catgut inserted back and forth behind the forceps competely through both broad ligaments at such distances as to satisfactorily tighten then. An approximation of from one to one and a half inches of the ligament is thus secured. The suture is applied so as to interlock and prevent the inward slipping of any of the blood vessels. When the suture reaches the round ligament it is caught in the angle of dissection where the bladder has been separated from the anterior vaginal wall. The suturing is continued backward on either side from this point embracing the broad ligaments and then into the angle of the depth of the dissection, thus compelling the bladder to rest upon the broad liagments. The loose ends of the exposed broad liagments are now approximated by a running buttonhole stitch, extending backward to the perineal aspect and the sides of the vaginal mucosal flaps, and complete closure accomplished by a running submucous catgut suture.

Perineal restoration, with a few rare exceptions, is, of course, to be included in all operations for uterine prolapse. It is highly important that this be done in such manner that the pelvic sling is so shortened that the vaginal opening is brought forward under the pubic arch and out of line of direct intra-abdominal pressure from above. To accomplish this the backward extending portions of the levator ani muscles, with the recto-vesical fascia above and the levator fascia beneath, are sutured together in the median line between the lower segments of the vagina and rectum.

I am sure if the procedures described in the foregoing are carefully followed the expression, "operations for prolapse do not seem to be very satisfactory," will fall into disuse; nor will there be noted any more vesical and rectal hernial protusions through the vaginal opening following hysterectomy or other operations for the cure of third or fourth degree prolapsus uteri.

DISCUSSION:

G. A. Hendon: I have nothing of especial importance to say in discussing Dr. Arnold's paper. No doubt the procedures he has described are practical and successful. I believe the interposition operation fulfills the object of restoration where there is any considerable degree of prolapse.

My conception of the essayist's idea is that the procedure of infolding the broad ligaments and removing the uterus is adapted for uterine prolapse of a minor degree. The only point that confuses me is why he should use more surgery to correct a smaller prolapse than he uses to correct an exaggerated prolapse.

Leo Bloch: The large number of operations which have been proposed to overcome uterine prolapse shows that we have not yet reached the right one; in fact, there is no procedure which can be applied to all cases. Any one who has performed many operations for prolapse has had failures regardless of the methods employed. Every book on gynecology gives a long list of operations for the cure of prolapse of various kinds and degrees.

I have had under my care a great many women with uterine prolapse, the majority of them being women who have had twelve or fifteen children. This was before they had so many nurses and public hygiene workers making the rounds taching people how to limit the number of children. I have seen many women with uterine prolapse who were walking around, some of them with the uterus hanging between the legs, but this did not seem to bother them very much. In earlier days, when large families were prevalent, during my service at the Jewish Hospital, a great many cases of procidentia and complete tears of the perineum came for surgical treatment. The older obstetricians could not find the tear, or if they did find it they did not do anything with it. We tried all types of operations for cure of the prolapse; all the surgeons connected with the hospital tried some from of operation; one woman had three different operations by three different surgeons; the result was the same in each case, i. e., failure or only partial success, with recurrence of the prolapse. It is absolutely impossible to cure a large percentage of these cases.

A. R. Bizot: My expereince has been much like that o fthe preceding speaker. Quite a percentage of my work in attempting to cure uterine prolpase by surgical measures has resulted in failure especially where a large cystocele presented. In view of the fact that so many operations have been devised for the cure of prolapse ,and that my work along this line has been somewhat unsatisfactory, I have gone backward one hundred years to find a method that would be successful. As a result I know of probably twenty elderly women in this city who are now wearing pessaries of the old type. They are living in comparative comfort and are satisfied. Many physicians do not seem to understand how to apply a pessary, they merely insert the pessary into the vagina and think nothing else is necessary, and, of course, their results are unsatisfactory. My plan is to put the pessary in hot water and change the shape to suit the individual case so that when introduced it will hold the uterus in proper position and be comfortable. I think many of you, after you have tried this method for a while in elderly ladies will quit doing quite so much surgery for uterine prolapse in women of firty years and older, especialyy so if some one or more operations have failed to retain the organs in their normal position.

John W. Price, Jr.: Dr. Arnold has treated the subject of uterine prolapse in a very scholarly manner. He has given us a resume of the anatomy of the pelvis, the supports of the uterus, etc. The treatment of prolapse he divides into clases, he does not treat each clas sthe same, and I think that is the keynote to success, i. e., to select the proper kind of operation for the degree of prolapse to be treated.

I have had very good success with the interposition operation in some cases; in others abdominal hysterectomy semed necessary and has been performed. It is always advisable to leave a stump of cervix and suture the broad ligament to that so as to give additional support to the pelvic contents. This is followed by complete repair of all vaginal lacerations; if cystocele is present anterior colporrhaphy is performed; and last perneal lacerations are properly repaired. If these procedures are carefully executed the result should be successful and satisfactory.

Unlike Dr. Bizot, I do not believe we are ever justified in using a pessary. I think we should get away from that idea. The pessary is irritating, it is dirty, it frequently causes inflammation and ulceration. I have had women come to me wearing pessaries which had caused a great deal of discomfort and I was asked to remove them.

M. Casper: Dr. Arnold has given us a most interesting paper on a live subject. It is my opinion that every case of uterine prolapse can be cured by the proper type of surgical operation. Eeach case should be considered individually, virtually a "law unto itself," as rarely do we find two alike, and there is no one operation which is applicable to all of them.

I do not believe in restorting to hysterectomy, because if that fails the patient is very much wores off than she was before. As matter of fact in uterine prolpase the bladder is nearly always involved and that is the worst feature of the case. That was the reason the interposition operation was devised. If the bladder is freely dissected from the vagina, the uterus replaced in proper position and the fundus sutured to the periosteum of the symphysis pubis, good results will usually be obtained. I have never yet failed to effect a cure unless the prolapse was extreme in degree. This operation is much simpler than the technique described by Dr. Arnold and I believe is equally effective. If his operation fails there is still prolpase of the bladder which is always the worst feature in the case. In some cases a good operation is to place the utehus outside the fascia of the abdominal wall in toto. The results from this procedure have been fairly satisfactory.

Another important feature in the operation for prolapse is closure of the perineum. Many operators fail to secure proper approximation of the levator ani muscle. That is an important step in the operation. I overlap the two layers of the levator ani muscle, much after the fashion of the McAndrews operation for closing ventral hernia. In this way a broad surface is secured and after healing the support is sufficient for the pelvic contents.

One of the most important feature in all these operations is careful technique to prevent infection and later suppuration. Another important thing is to be certain of thorough hemostasis. If concealed hemorrhage occurs a hematoma is formed followed by infection and weakening of the wound and failure.

If the operation is well executed from a mechanical standpoint and no infection occurs, I see no reason why all of these cases cannot be cured.

John R. Wathen: I am sure we have all enjoyed Dr. Arnold's excellent paper. A few years ago we did not understand how to cure uterine prolapse, and that is the reason why so many women are still walking about with prolapse or are wearing pessaries. Wertheim, Martin and Watkins introduced their various operative procedures, interposition operations, etc., in 1898. They realized that none of the operations previously devised, such as the Kelly operation, the Alexander operation, etc., were of any value in certain types of cases. These procedures are useful in young women for the cure of moderate degrees of uterine prolapse, but the women who ordinarily present themselves to the surgeon for the relief of prolapse are between fifty and sixty years of age. They give the history of repeated childbirth and the entire pelvic floor is relaxed and sagging. Many of them have cystocele associated with the prolapse.

What is it that supports the pelvic floor? It is the levator ani muscle. This is the basic principle of the production of uterine prolapse. If the perineum is seriously damaged the vagina relaxes allowing the uterus to descend and there is always a tendency toward the production of cystocele. However, there must be complete retroversion or retroflexion before prolapse can occure; there can be no prolapse if the uterus is in its normal position. This is the keynote to the entire situation. Wertheim, Martin and Watkins emphasized these basic principles years ago and explained why the Alexander operation so frequently failed to cure uterine prolapse. Now we are having a very large percentage of cures since we undertstand the basic principles underlying the production of prolapse, but no single operation is applicable to all cases. The Watkins operation will be found unsatisfactory in certain types of cases, and the same statement will apply to the Mayo operation, the Murphy operation, etc.

If the uterus is very large it has not sufficient room, it presses on the urethra and also exerts pressure in the cul de sac in such a way that it is difficult to handle. If the uterus is very small difficulties are also encountered in maintaining it in position. Therefore, small and large uteri are unsuited to the interposition operation. When the uterus is of average size the fundus can be brought near the symphysis pubis without undue pressure on the urethra, bladder or in the hollow of the sacrum, then the interposition operation can be satisfactorily applied, and if there is no infection the result should be successful. If I am not mistaken satisfactory result have been reported in nineyt-five per cent of instances.

Mayo's operation is very valuable, whether the uterus is small or large, but it is a procedure which sometimes fools the operator. Two clamps are applied and the tissues severed with a heavy pair of scissors or a knife. Even if mattress sutures are used they will sometimes slip and hemorrhage occur. To prevent this it has been my custom to sever the uterus about 1 cm. from the clamp. Sutures are then placed either behind or in front of the clamp, mattress sutures being used, and after being certain hemostasis is complete the redundant uterine tissue is excised. This prevents slipping, prevents hemorrhage, and is a gerat aid in the operation.

Dr. Price mentioned one point of especial importance in this connection, i. e., in the event hysterectomy is performed the cervical stump is securely attached to the broad ligaments. Instead of using catgut in this operation I believe better results will follow the application of kangaroo tendon.

In the Murphy operation the uterus is split in two halves and turned under the fascia over the recti muscles. There is no single operation for uterine prolapse and cystocele; the surgeon simply has to adapt the operation to the individual case, and not try to adapt the case to the operation.

H. A. Davidson: More than one hundred different operations have been devised for the cure of uterine prolapse. I have recently seen statistics from an Eastern hospital, one of the best hospitals in the country, where the operators used the latest methods recommended today, showing that there is still a large percentage of failures. These operations were performed by the best surgeons, the very latest methods of procedure were used, and the patients were traced for several years, yet there were a number of failures. They have not yet arrived at an ideal operation and probably never will, because there is not ideal operation for uterine prolapse. There cannot be a single operation because every case of prolapse is different. I think the combined operation is probably the best, i. e., an abdominal section is made after the vaginal work has been done. First one should operate upon the cervix, and do an anterior colporrhaphy or whatever may be necessary, then repair the perineum. After these procedures have been completed the abdomen is opened and some sort of a suspension done or whatever other operation may be considered most appropriate.

Dr. Wathen spoke as if the Wertheim or Watkins operation would cure the prolapse in nearly every case. The majority of gynecologists have probably seen patients subjected to the Wertheim-Watkins procedure where the entire uterus prolapsed after the operation. In some of these cases both the uterus and urinary bladder protruded through the vagina and the patient was in worse condition than before the operation. The Wertheim-Watkins operation is not ideal, and I doubt if statistics will show ninety-five per cent of successful results by this method of procedure.

E. S. Allen: Dr. Arnold's paper is very interesting. I agree with Dr. Hendon in that it seemed surprisng that the less the degree of prolapse the more surgery required to correct it.

It has been my expiernce that where there is complete uterine prolapse, the bladder and even the vaginal walls protruding, that the procedure of pulling the uterus upward into the abdominal incision, dissecting the rectus muscle from its fascia, incising the broad ligament and attaching lower, pulling fundus of the uterus well upward and to some extent longitudinally into the incision and stutring to rectus fascia with chromic No. 2 or No. 3 catgut or with kangaroo tendon, corrects the prolapse and cystocele better than any other operation in my hands; then going below and dong a perineorrhaphy and closing the vaginal outlet to the extent that it is as nearly normal in size as practicable.

In doing hysterectomy unless the broad ligament is brougth together and union is perfect, there will still be a tendency to hernia into the vagina, and if this operation fails, as Dr. Casper has said, there is hardly another operation to which resort may be had that will give the patien any relief.

I have operated upon quite a few patients (eight or ten for complete prolapse, where the uterus, bladder and vaginal walls protruded, and have been able to follow them for several years; so far as I know they have gotten perfect relief symptomatically and anatomically. In these cases I stitched the fundus of the uterus directly to the fascia of the rectus muscle with kangaroo tendon or No. 2 or No. 3 chromic catgut and then performed perineorrphapy and such other procedures as were necessary. Some of these patients live in Louisville and I see them frequently. I have had no recurrence of the prolapse and apparently the results are perfect.

I did not know there was now a doctor in Louisville who advocated or used the pessary for uterine prolapse. I have never introduced a pessary, but have removed several because of irritation, ulceration, etc. In some instances the pessary had become encysted and caused considerable trouble. I do not see how a pessary can be expected to accomplish any benefit in uterine prolapse.

C. G. Arnold (closing): I want to take issue with those who say good results are not secured from the surgical treatment of uterine prolapse. My reason for selecting this subject for my paper was to try and refute the prevailing idea concerning the futility of surgical procedures in the treatment of these unfortunate patients. We have heard the statement made many times, especially by general practitioners, that favorable resulth are not often secured from surgery in these cases. During the last three years I cannot recall a single case in my personal experience where a perfect result was not secured. Properly performed the operation for uterine prolapse should be just as satisfactory as any other surgical procedure.

Dr. Casper said something about hysterectomy in cases of uterine prolapse, stating that after this operation the patient was in worse condition than before. This may be true if hysterectomy is performed in the ordinary way. Hysterectomy is not indicated except in extreme cases, where the uterus is atrophied and protrudes competely from the vagina in the anteverted position. Under all other circumstances the uterus should be left for its supporting effect.

Dr. Wathen mentioned very small prolapsed uterio which are difficult to hold in proper position: In this type of cases hysterectomy is advisable as I have just stated. After the uterus has been removed the broad ligaments are brought together and sutured with catgut or kangaroo tendon. All the uterus does in cases of this kind is to fill the space between the broad ligaments, and after hysterectomy if the board ligaments are sutured as I have described the result should be perfect. It must be remembered that prolapse of the bladder and rectum caues a greater amount of trouble than the uterine prolapse in these cases.

Dr. Davidson says first class surgeons have many failures after operations for uterine prolapse. That reminds us that most good surgeons can do any operation fairly well, but the remainder is also pertinent that mighty few surgeons seem able to properly perform the various procedures necessary to correct uterine prolapse. The same statement will apply to perineorrhaphy, i. e., practically every surgeon can perform this operation, but how many of them do it right? The fact that ten or a hundred operators have had failures in operating for uterine prolapse does not mean that there is anything wrong with the operation, the fault probably lies with the operator.

It is a mistaken idea, when uterine prolapse exists and operation is performed for its correction, to pull the cervex forward. As stated in my paper the cervix should be fixed in the posterior portion of the pelvis within one inch of the junction of the second and third sacral vertebrae. As Dr. Wathen has well said, prolapse cannot occur until the fundus assumes a position of retroflexion, thus becoming on a line with the vaginal outlet. And in performing the operation for correction of the prolapse the uterus should be drawn forward and upward, the cervix upward and backward. In other words, the straight line must be destroyed, otherwise the prolapse cannot be overcome. In readjusting the relative position of the cervix and uterus the thin vaginal walls can be stretched without doing any harm.

I saw a patient some time ago upon whom one surgeon had operated for uterine prolapse; he did a vaginal hysterectomy and merely "turned the broad ligaments loose." Of course, the results was not satisfactory. About six months later the patient was seen by a Louisville surgeon who sutured the upper portion of the vagina to the abdominal wall. The result was fairly good so long as the adhesion remained firm. However, the woman stepped from the curbing one day and sustained a considerable jarring; everything "broke loose" and both the bladder and rectum protruded through the vaginal canal. It looked like a difficult case to cure. I happened to have seen the operation performed by the Louisville surgeon and knew he had sutured the broad ligaments together, therefore all I had to do was to open the old scar and complete the operation. The cervix was fixed in a position almost against the sacrum and the broad ligaments brought across and sutured under the bladder. The patient made a perfect recovery. There is no way recurrence can now happen as the broad ligaments are firmly united with the bladder lying on top of them.

As I tried to make plain in my paper the main object of the operation for prolapse is to restore normal relations of the cervix and uterus and maintain these relations by proper procedures. The cervix must be fixed in a position so far backward toward the sacrum that the corpus uteri cannot prolapse, but must be directed forward in its normal anteverted position of "mobile equilibrium." This result can be accomplished in practically every instance by the technique described in my paper.

Stomach-Liver Syphiloma.—Florand and Girault diagnosed the syphilitic nature of the stomach disturbances from their persistence for three years, the good appetite, and absence of tenderness, and the fact that the large tumor disclosed by roentgenoscopy would have been more debilitating if malignant. Another instructive feature was the tolerance for potassium iodide; the stomach objects to this drug in all but syphilitic disease. The fear that sclerosis was probably installed led to a laparotomy.

PRURITUS ANI: CASE REPORT.*

By Bernard Asman, Louisville.

It is, of course, generally understood that pruritus ani is simply a symptom and not strictly speaking a disease in itself; yet, because of the obscure, indefinite and oftentimes complicated pathology responsible for the intense if not intolerable itching, the term is frequently employed to signify not only the itching but also the local pathology of whatever nature, of which it is the chief and perhaps the only manifestation.

My object in reporting this particular case is to call attention to certain facts the definite recognition of which are essential to the successful treatment of this most obstinate of rectal affections.

Mr. B., farmer, a reasonably robust-looking but nervous individual, aged forty-three years, complained of severe itching and burning pain in perianal region and anal canal. Itching was first noticed fifteen years ago, but for several years gave trouble only at intervals. In the last three or four years itching has been practically constant and in the last two months has been almost unbearable, no rest being obtained either day or night. History and physical examination of other parts of the body of no relative significance, entire trouble apparently being in ano-rectal region external inspection of which reveals thick, leathery looking, highly inflamed skin thrown into numerous folds radiating from the anal orifice. Digital examination shows continuation of disease upward in anal canal, sphincters irritable and hypertrophied. Internal hemorrhoids, large and ulcerated. Perianal region moist with highly irritating discharge which patient says has been constantly present for years. With the anal-canal speculum in position an opening easily admitting a small round-pointed probe is found in the posterior median line just above the muco-cutaneous junction. From this opening a sinus is found to lead into the rectal wall between the mucous and muscular coats and almost completely encircling the anal orifice, constituting the typical submucous fistula so often found in, and perhaps as the chief causative factor of, well-defined cases of pruritus ani. It is from this submucous fistula (not always so extensive as in this case) that the characteristic discharge (pus) comes, and which in the beginning simply causes an irritating or perhaps slight inflammation and temporary itching. If appropriately treated in this stage the pathological thickening of the skin with compression and ultimate disease of the sensory nerve endings is prevented. If allowed to continue the inflammatory exudate in the skin gradually increases finally becoming organized and producing the hard, thickened skin usually seen in severe cases of pruritus of long standing.

An operation was performed in which the hypertrophied sphincter was carefully and thoroughly divulsed; the hemorrhoids were removed; the fistula and surrounding diseased tissue carefully excised; thus removing what was evidently the original cause of the pruritus. Uneventful recovery from operation, but no relief from the intolerable itching.

Three months later a second operation was done, in which a strip of skin 1½ inches wide, ½ inch from the muco-cutaneous junction and completely encircling anal canal, was removed. The remaining skin around the anus was carfeully undercut, likewise the pruritic skin outside the denuded circle, thus severing the diseased nerve endings left, also freeing the skin sufficiently to permit apposition and catgut suturing. Union took place by first intention and there was complete cessation of itching from time of operation.

Subsequent reports from time to time were satisfactory, and after six years there has been no recurrence.

One point, it seems to me, to be emphasized in this connection is: that a very large percentage of cases of pruritus ani are directly traceable to an irritating discharge which continues for months or years, this discharge coming in most instances from a submucous fistula; in a smaller percentage of cases the discharge comes from ulceration within the rectum, ulcerating hemorrhoids, other fistulous tracts in the region, or ulcers of one kind or another in the anal canal. The case also illustrates the fact that removal of the hemorrhoids, excision of the fistula and removal of all pathology about the anus or within the anal canal does not necessarily cure the pruritus because disease of the skin also exists, and even though the ulcerating hemorrhoids, fistula and ulcers of whatever kind be removed, unless the diseased skin is likewise taken care of the patient is not thoroughly relieved.

Another point worthy of emphasis is: a rather large area of diseased skin may be removed from the anal region, and if the adjoining skin left is properly undercut the edges carefully apposed and sutured, complete union by first intention can be secured without any bad result following as regards the skin or causing the patient any trouble.

I may also suggest that plastic surgery in this region is applicable not only to anal pruritus but in other types of pathology about the rectum.

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*Read before the Jefferson County Medical Society.

PARALYSIS AGITANS AS A SEQUEL OF ENCEPHALITIS, CASE REPORT.*

By JOHN J. MOREN, Louisville.

I would like to report a case history received by me yesterday. It represents something unusual to me and quite interesting. The patient is a woman, aged twenty-six years; married and has two children. In March, 1919, she had influenza and married a short time afterward.

She then had no illness of any consequence until November, 1920, when she suffered severe radiating pains about the head and neck and had some delirium. This persisted for nearly six weeks. During December she gave birth to a child without any complications so far as I could determine. A short time after the delivery the family noticed she did everything very slowly; that is, whenever she attempted to move around her gait was extremely slow and deliberate, and oftentimes in attempting to do something which caused her to raise the hand to the level of her head for example her hand would stop in that position and remain there for some time.

There was some improvement in her condition, and she then became pregnant the second time. It was reported by the family that after this she appeared more like herself and seemed normal. In September, 1921, she gave birth to her second child without any complications. Following this delivery her slowness of movement and slowness of speech became markedly increased. She seemed to be in worse condition than following the previous delivery.

When I saw her yesterday she presented the typical picture of paralysis agitans attitude so frequently noted following as a sequel of encephalitis. The question, of course, arises did this patient have encephalitis in November, 1920, and did she have a recurrence of the encephalitis in September, 1921? That is the picture she presents today. There was no history of double vision nor did the patient have fever at any time so far I could ascertain.

Cases of this kind have been reported as having occurred during pregnancy, but the manifestations in this case followed pregnancy. During the time the woman was pregnant she seemed entirely normal. It is the first case that has come under my personal observation with such a history.

DISCUSSION:

W. E. Gardner: I believe this is simply a case of encephalitis with exacerbation induced by the strain to which the woman was subjected as a result of pregnancy. It seems improbable that she had two separate and distinct attacks of encephalitis so close together. The probability is that the woman never became entirely normal after the first attack and her present condition represents a sequel. How much influence the second pregnancy had in the development of her present symptoms it is impossible for any of us to say.

I have not heard of a case exactly like this before. We know that following an attack of encephalitis if the patient is subjected to undue stress or strain, infection or toxemia, or an extraordinary drain on vitality such as might be produced by carrying a child in utero, there may occur an exacerbation of the former attack. I believe that is what happened in Dr. Moren's case.

Ben Carlos Frazier: I do not believe we are yet far enough advanced in our study of encephalitis to know very much about some of its complications and sequelae. We do not know whether the patient ever becomes entirely well, and if so the length of time it takes for full recovery.

Dr. Moren and Dr. Gardner will recall having seen with me a girl of seventeen who had encephalitis. She was practically an invalid for many months and to all appearances has never yet become entirely well. Dr. Pfingst also saw the patient with me She has improved considerably, but has never become her normal self.

What effect pregnancy had in the case reported is entirely a different question. I do not believe any of us know much about it. However, I am inclined to think Dr. Gardner's assumption is correct.

Wm. J. Young: The case history related by Dr. Moren is certainly very interesting. However, in addition to the evidence he has presented I think spinal puncture would be absolutely necessary to establish the diagnosis. In this way it could be determined whether there was an increase in the cell count, globulin percentage, etc. A Wassermann test of the spinal fluid would bring the evidence still closer and probably establish the diagnosis.

Leon K. Baldauf: I want to ask for some information in connection with the after effects of encephalitis. Dr. Dabney saw a patient with me some time ago after disappearance of the acute symptoms of encephalitis. The man had a very severe attack, but apparently recovered, and no one at that time suspected that we might have all the various sequelae of encephalitis that we are now seeeing.

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*Read before the Louisville Medico-Chirurgical Society.

Following the attack of encephalitis the man was apparently in good health. He applied for a sick benefit policy and was passed by the insurance company. Four or five months afterwards he developed the characteristic paralysis agitans type that sometimes follows as a sequel of encephalitis, and now the insurance people refuse to pay him $25.00 per week on his life insurance, claiming they are not bound to do so by the policy because they were not informed of his severe illness some time before. The question arises whether the company would have refused him insurance if he had told them of this attack of encephalitis. There was no possible means of telling at that time whether or not there would be any sequelae.

I think Dr. Moren's case is of great interest from a therapeutic standpoint. We know that during pregnancy some of the ductless glands may act in a peculiar way. I have recently been studying the function of the pituitary gland with especial reference to pregnancy. We know that the pituitary gland during pregnancy rather frequently becomes very much enlarged. Some cases have been reported where there was bitemporal hemianopsia as a result of pituitary changes during the pregnant state. These findings are interesting and may eventually lead to a more definite therapy in these peculiar cases.

I have under observation now a patient with paralysis agitans type who has been given mixed gland therapy for some time and the spasticity has almost completely disappeared. The question naturally arises whether or not these peculiar changes following encephalitis are due to some endocrine disturbance.

In Dr. Moren's case the patient seemed to improve during pregnancy and the symptoms reappeared when delivery was effected. This may be a factor of some significance.

S. G. Dabney: I remember having seen with Dr. Baldauf the patient he has mentioned after the acute symptoms of encephalitis had subsided. I do not recall the details at this time.

I happen to have had two patients brought to me within a month of each other, both of them were under the age of twenty years, and both complained of double sight. Double vision from central nerve disease is very uncommon under the age of twenty years. Most of the people I see with double sight are beyond forty years of age.

These two young men complained of diplopia, slight fever, and headache and dizziness which preceded the diplopia. After careful examination we agreed that the symptoms were probably due to encephalitis. Another patient, the son of a physician, presented similar symptoms, and in addition had paralysis of the oddneens muscle. He gave exactly the same history and was sent to me by his father because of double sight. In all these cases the temperature was about 101° F. They all complained of dizziness preceding the development of double sight. They had headache and ocular symptoms such as I have mentioned.

Some time ago I saw a trained nurse at the Louisville City Hospital. Although the history was not quite typical I made the diagnosis of encephalitis which proved to be correct. She had paralysis of certain ocular muscles; she had headache and fever preceded by dizziness.

I was greatly interested in what Dr. Moren had to say in his case report. I do not pretend to have seen as many cases as he has of encephalitis, and hope he will tell us in closing something more about how frequently optic nerve atrophy occurs in these cases. My impression is that it is a decided rarity in encephalitis.

I have seen one case of encephalitis where there was facial paralysis. The patient was a young woman who came to me because of double sight; she also had some pupillary disturbance; she had headache. A few months later she developed paralysis of the facial nerve.

I happen to have complete records of only three or four patients extending over a period of a year following attacks of encephalitis. Only one of them has expressed himself as being perfectly well. I do not believe any of us are justified in making a definite statement as to the length of time required for recovery after an attack of encephalitis.

John W. Moore: The case reported by Dr. Moren is extremely interesting. He stated that his patient developed typical paralysis agitans attitude which he attributed to a previous attack of encephalitis. Based upon the history related there can be no question about correctness of the diagnosis. I am aware of no other disease that could be suggested which might produce the syndrome mentioned except encephalitis.

I recall a similar case in a man seen at the hospital some time ago. When we elevated his arm it would be maintained in that position for an indefinite period. This is one of the characteristic manifestations of encephalitis.

John J. Moren (closing): There has recently been published a monograph or booklet on encephalitis which I believe should be carefully read by every one who is interested in this subject. It is composed of a series of articles which were read before the Association of Mental and Nervous Diseases in 1920. One of the papers relates to the pituitary gland. It was the conclusion of the author that the pituitary had practically nothing to do with encephalitis.

In regard to the prognosis: I have always been pessimistic and am more so today than ever before. So far as I can recall I have seen only one patient in whom recovery from encephalitis was complete. All the others have developed sequelae of one type and another, and it is a sad commentary, but I know of nothing to recommend to them.

A very interesting article appeared in the Journal of the American Medical Association a few weeks ago on this subject. In a previous paper the author contended that only about ten per cent of cases developed pronounced nerve symptoms following encephalitis; but he has now changed his opinion and states that only about ten per cent escape complications and sequelae.

DEEP ABSCESS AND CELLULITIS OF ABNOMINAL WALL FOLLOWING PNEUMONIA: INOPERABLE MAMMARY CANCER: CASE REPORTS.*

By JOHN W. PRICE, Louisville.

The two patients to be exhibited are from the female surgical (colored) ward of the Louisville City Hospital. They have been in the hospital only a few days. Certain features in each case seem sufficiently interesting to warrant detail presentation.

Case I—F. M., a negress, aged twenty-seven years, was admitted with the provisional diagnosis of uterine myofibroma. She was treated in the hospital during February, 1922, for pneumonia. As she was recovering from the attack of pneumonia she had pain in her left leg. However, she said there was no swelling at any time, but pain continued. About four weeks ago she began complaining of pain in the lower left abdominal quadrant. This pain continued and gradually extended over the entire pelvis. She treated herself by painting the abdomen frequently with tincture of iodine full strength and applying hot cloths. The skin over the abdomen became ulcerated and refused to heal under her treatment. Pain persisted until she came to the hospital and the provisional diagnosis of fibroid tumor was made.

My examination failed to disclose any evidence of fibroid tumor or any disturbance in the pelvis that was palpable. The uterus was small and freely movable. There was no mass on either side of the uterus, no laceration of cervix or perineum. In fact, the pelvis was entirly negative.

The abdominal wall of this patient now presents a peculiar condition, one which is rarely seen. It reminded me the first time I saw it of a case of sarcoma of the rectus muscle which occurred in a young girl. However, upon closer examination and careful palpation the condition seemed to be an inflammatory infiltration. Her temperature since she has been in the hospital has been slightly irregular; the maximum of 101° F. was reached at one time. The chart for the balance of the time shows practically a normal temperature. On some occasions it has been 99.2°, but only once reaching 101° F.

It seemed to me that this area, which is slightly edematous upon pressure, was inflammatory in origin probably secondary or metastattic infection from pneumonia which she recently had, or it may have been secondary to infection which occurred following blistering of her skin by the iodine and compresses. This area extends from the crest of the pubes to about two finger breadths below the umbilicus, laterally on the right side to within two finger breadths of the anterior superior spinous process of the ilium, on the left side the infiltration extends to the outer margin of the rectus muscle. The mass is hard and brawny, it is densely connected with the skin, and skin like this over the breast would immediately suggest cancer en cuirasse.

However, in this case I think the condition is inflammatory in type.

Note.—Operation April 4th showed deep abscess of abdominal wall and cellulitis. Multiple incisions were made and drains inserted.

Case II—The second patient is a negress sixty-five years of age. She says a lump was first noticed in her left breast about a year and a half ago. It was painless until two months ago. When she began to have pain the skin over the mass became ulcerated and now she has a condition which is typical of the late stage of mammary carcinoma. The axillary glands are enlarged, the skin is fixed, the tumor is fixed to the chest wall. Roentgen-ray examination shows some involvement of the mediastinal glands and the condition is certainly inoperable.

I simply show this patient because such cases nowadays do not come to hospitals in this stage of the disease as frequently as they used to. We now get our cancer cases a little earlier than formerly, but in spite of all the propaganda having for its object inducing the patient with cancer to apply to the surgeon early, still in some instances there is considerable delay.

If any one thinks this patient can be benefited by the use of radium or the Roentgen-ray I shall be glad to have her so treated. Surgically the case must be regarded as inoperable. I would like to know whether any gentleman thinks the new high voltage x-ray machine would promise anything in a case of this kind.

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*Read before the Jefferson County Medical Society.

DISCUSSION:

Ben Carlos Frazier: In the first case reported by Dr. Price it looks like the patient may have a mural abscess. Whether the condition is due to the application of iodine or something else it would be difficult to say. I have seen a good many cases where the application of iodine produced lesions similar to this. It is hard to tell much about skin lesions in colored people. This woman has had two or three children and the linea alba are extensively distributed over the abdomen. She has evidently had deep infection of some kind probably from without.

CANCER OF THE PROSTATE GLAND, TREATED BY RADIUM—CASE REPORT.*

By Wallace Frank, Louisville.

In presenting this case to the society I do so simply to show what can be done in the way of relieving—possibly curing—patients suffering with urinary obstruction due to a cancerous enlargement of prostate gland.

Mr. C. H., age 71, consulted us on June 16, 1921, for difficulty in urination. The family history is negative and, other than the fact that he had a prostatectomy performed four years ago, the past history is unimportant.

He states that following his operation he was apparently well until six months ago when he again developed frequency and difficulty in urination. . The frequency was about the same during the night as in the daytime. He had to strain a great deal and there was dribbling after voiding. He had no pain in the kidney region.

Appetite is good, he has no indigestion and defecations are regular. No headaches or vertigo.

He has a slight cough and is short of breath on exertion. He has no pain in the chest, no cardiac palpitation, nor has he had any edema of the face or legs.

Examination revealed a large, elderly gentleman who is rather nervous and "shaky."

The lungs are apparently normal. The heart is regular, there are no murmurs, but the muscle-tone is not good.

The lower abdomen is distended and the bladder extends to the umbilicus. Otherwise abdominal examination is negative.

Rectal examination reveals a large, hard, nodular prostatic tumor. Blood pressure, systolic, 105; diastolic, 65. Blood, Hgb., 50%; R. B. C., 3,590,000; W. B. C., 14,950; polynuclears, 95%; lymphocytes, 5%.

Blood urea was 72.76 milligrams per 100 ccm., and the sugar 142 milligrams per 100 ccm. of blood.

Urinalysis, light amber, neutral in reaction, specific gravity, 1.005; albumin, two plus, sugar, none. Microscopically there were a large number of pus cells and a few renal cells; no casts were seen. The bladder was gradually drained and irrigations with boric acid solution instituted.

On June 25th a suprapubic cystostomy was done. Examination revealed a large papillary, fungating growth extending into the bladder. A Freyer tube was sewed into the bladder and the wound closed about the tube. Five days later 50 milligrams of radium filtered through a silver capsule and one millimeter of brass was introduced into the prostatic urethra through the suprapubic opening and at the same time two 12½ milligram gold needles were introduced into the prostatic tumor and all were allowed to remain for eight hours.

The patient left the hospital on July 16th with a small catheter in the suprapubic wound. This drainage was continued until the later part of August at which time he was again treated with radium needles. The needles were inserted through the suprapubic opening as before and allowed to remain in the prostatic growth for twelve hours, four needles being used. The patient then left the hospital and the suprapubic wound allowed to close. He voided normally, passing 6 to 8 ounces of urine at a time, and while there was some frequency of urination, it was not marked and the amount of residual urine was small.

During the first week of October we again had Mr. H. go to the hospital for another application of radium. Two needles of radium, each containing 12½ milligrams, were inserted into the tumor through the perineum, and at the same time 25 milligrams of radium screened with silver was inserted through the urethra into the prostatic growth. The duration of this treatment was 8½ hours. During the last part of November we again inserted radium needles through the perineum into the cancer.

Since the suprapubic opening was permitted to close Mr. H. has had no apparent urinary difficulty. He has gained in strength, has never had any pain, and the growth is now about one-fourth its former size.

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*Read before the Louisville Medico-Chirurgical Society.

DISCUSSION:

Owsley Grant: The problem of prostatic carcinoma is an exceedingly interesting one and has become even more so since we have been using radium.

The difficulty about the diagnosis of carcinoma of the prostate is twofold. As a matter of fact a large percentage of the adenomatous tumors of the prostate upon removal show some carcinomatous involvement. Of course, when a large cancerous mass involves the prostate the diagnosis can be definitely made by palpation, as there are usually definite signs of a hard intervesicular plateau, nodules in the vesicles and prostate, etc.

The use of radiotherapy until about two years ago was to introduce the radium into the urethra through the cystoscope and also into the rectum. They gave on the average about 2,000 to 2,500 milligram hours of radium through the rectum. This became so irritating to the rectal mucosa that the plan had to be abandoned, and Barringer conceived the idea of using radium needles as Dr. Frank has mentioned. Their procedure now is to use small needles (10 to 12½ milligrams), which are inserted into the tumor and allowed to remain for twenty-four hours. In those prostates which were adenomatous in addition to being carcinomatous they found that they had not reduced the adenomatous portions, but the carcinomatous portions had been markedly reduced, with a consequent degeneration of the malignant cells to a great extent. Many of the patients were operated upon after radium had been used, and it has been found in every instance that while the adenoma had been only very slightly reduced the carcinoma was markedly reduced, but in every one of them active carcinoma cells were still present.

After the application of radium it is advisable to remove the entire prostate in cases where removal is indicated either by what is known as the subtotal operation or the Young procedure which includes the capsule with the entire surrounding mass.

The idea of using radium needles is to avoid irritation of the rectal mucosa. Another advantage is that the radium is introduced into the substance of the tumor by the use of needles and consequently applied directly to the malignant mass.

Wm. J. Young: In the treatment of carcinoma of the prostate or urinary bladder I much prefer the suprapubic route. The introduction of needles through the perineum appears rational theoretically, but as a matter of fact we have little assurance as to just where our needles are going even when guided by a finger in the rectum. By opening the bladder and introducing needles or tubes into the prostate or into a bladder tumor the procedure serves a two-fold purpose, i. e., the radium is not only brought into direct contact with the diseased structures, but it enables one to determine the extent of the lesion. This method also furnishes a means of drainage which I think is absolutely essential. When there exists a carcinoma either of the prostate or the bladder I believe the suprapubic wound should be kept open for a long time.

Based upon my experience with the perineal and also the suprapubic route in cases such as Dr. Frank has reported, it seems to me the latter has many advantages over the former. Personally I would not consider treating a prostatic carcinoma through either the perineum or rectum with radium. I have declined several cases during the last six months because the patients refused to permit a suprapubic opening to be made. In the treatment of prostatic carcinoma I believe we should use the most direct route, and this is certainly through a suprapubic opening and not through the rectum or perineum.

In the treatment of carcinoma by radium it has been definitely demonstrated that the most advantageous plan is to use one gigantic dose rather than several smaller doses. The main object of the large Roentgen-ray machines now being placed on the market is to enable the operator to give one tremendous dose which will produce mitosis and death of the cancer cells. Whenever a second dose has to be given in the treatment of cancer we are losing just that much ground. If the patient with cancer, especially internal cancer, is in good physical condition and has fairly normal resistance, the maximum dose of radium or Roentgen-ray should be given. In other words, if we expect to cure cancer we should attempt to do it the first time. Much valuable time is lost by giving a small dose, then repeating it in two weeks, three weeks, etc. If the maximum dose is given and the cancer is not cured the chances are further applications will also be ineffective.

L. Wallace Frank (closing): I agree with Dr. Young that prostatic carcinoma should be treated through a suprapubic opening. By this plan not only do we secure bladder drainage, which is desirable, but it also affords the operator an opportunity to accurately determine the extent of involvement. Furthermore, we can introduce the radium into the growth guided not only by palpation but also by vision. This we did in the case reported. However, after allowing the operative wound to close one must then either treat the cancer by needles through the perineum or by radiation through the urethra or rectum. The latter is easily accomplished but proctitis with tenesmus are frequent sequelae. I believe with a finger in the rectum as a guide needles can be inserted through the perineum and be very accurately placed into the prostatic growth. Treatment through the perineum by needling should be done not only when the suprapubic wound is closed, but also while it is still open. Young, Geraghty and Barringer are all treating prostatic cancer by radium needles inserted through the perineum in addition to radiation per urethram and rectum.

ABSCESS OF THE LIVER.*

By J. P. Boulware, Louisville.

This case is reported because of its unusual character and also on account of the fact that liver abscesses in this section of the country are relatively rare.

Abscesses of the liver may be divided into traumatic, amoebic and pyemic. Pyemic abscesses are usually multiple and part of a septicemia, the infection in the liver being secondary to a focus elsewhere in the body. The ordinary infecting organisms in such cases are streptococci and staphylococci. These are carried to the liver most commonly by the portal circulation, but also through the general circulation and by the lymphatics. Such abscesses may, however, be caused by direct extension of a peritoneal infection, such as a perforated ulcer on the posterior wall of the stomach or rupturing into the liver of a subphrenic abscess.

Less common causes of liver abscesses are suppuration of an hydatid cyst, echinococcus cyst, cholangitis, infection of the gall bladder and typhoid fever.

E. M., female,. aged 22, single, when first seen about six p.m., October 28, 1921, was in a state of shock, suffering with generalized abdominal pain, most marked in the upper right quadrant. Family history: Negative. Previous history: Had the usual infectious diseases of childhood, six years ago had an attack of acute pelvic inflammatory disease, was not operated; no venereal disease or typhoid.

History of present illness: Has had attacks of what she called acute indigestion for eight years. Eleven days ago following the ingestion of food she had an attack of acute indigestion characterized by vomiting and intense pain over the epigastric region which required morphine for relief. Patient remained in a stupor for two days and the pain continued for four days. Seven days later she had a similar attack of pain in the epigastric region of greater intensity accompanied by vomiting and a temperature of 104 degrees F. There was no blood in the vomitus or dejecta. The patient was never jaundiced and had no urinary symptoms. Menses normal.

Physical examination: Well developed female of good nutrition; no jaundice. Eyes react to accommodation and light, pupils equal. The ears and nose are normal. Mouth: Mucous membrane pale, tongue heavily coated and dry, lips fissured. Chest: Normal in shape, no depressions, breathing shallow and equal, broncho-vesicular breathing throughout both lungs, no rales or friction sounds heard. Heart: The apex beat in the fifth interspace inside the mid-clavicular line. A soft systolic murmur is heard at the apex which was transmitted to the axilla. Abdomen: Slightly distended, there is decided tenderness over the entire right side of the abdomen, most marked over upper right quadrant. There is rigidity of both recti muscles. There is no peristalsis audible. No masses or pulsations palpable. No fluctuating dullness elicited. The liver dullness is present and increased. Pelvis: Fixation of the uterus and induratiou of the adnexal region on both sides. Reflexes: Normal. The temperature is 101, pulse 92, respirations 32, systolic blood pressure 100 and diastolic 70.

Blood examination shows Hgb. 88 and white blood cells 14,000. Urinary examination shows specific gavity 1,020, albumin two plus, suga rand bile negative and many pus cells.

Clinical diagnosis: (1) On account of the location of the pain and tenderness; the history of repeated attacks of acute indigestion; the state of shock and the septic condition of the patient, a diagnosis of perforated empyema of the gall bladder with general peritonitis was made.

(2) Chronic pelvic peritonitis.

The patient was sent to the hospital. Her condition gradually became worse and she died at eleven p.m.

SUMMARY OF AUTOPSY FINDINGS.

Peritoneal cavity contained about 1,500 c.c. of turbid, brownish fluid. Peritoneum everywhere smooth, dull and speckeled with red. Small intestines in lower portion of abdomen stuck together with weak fibrinous adhesions. Uterus and intestines near it bound down with stringy fibrous adhesions, adnexa being fixed in posterior portion of pelvis.

Around liver, gall bladder and spleen are fibrous adhesions, as well as many fibrinous adhesions. Both are numerous over dome of the right lobe of the liver. In situ anterior margin of liver reaches 9 cm. below base of xiphoid and 6 cm. below costal margin in right mid-clavicular line. Pleural cavities present a few stringy fibrous adhesions over upper portion of left lung and over lower portion of right lung posteriorly and over right apex. Lungs weight respectively 400 and 290 gms.

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*Read before the Jefferson County Medical Society.

Upper left lobe reveals a cavity 5 mm. in diameter containing pale, yellowish substance surrounded by grayish, linear zones.

Spleen weighs 260 gms. Gastro-intestinal tract negative. Liver weighs 2,510 gms. Organ is dull pinkish brown to deep purple. On right side, dome presents yellowish fluctuating area, 10 cm. in diameter, perforated by many openings from each of which purulent material may be expressed. Anterior to this area is another smaller one covered with light yellowish exudate. Cut surface dull reddish brown and discloses oval area, 10x15 cm., presenting many variously sized pockets, some appearing discrete although majority communicate with one another, all of them filled with yellowish, puriform material. Throughout this area may be seen variously sized fragments of reddish discolored liver tissue, the picture simulating cross section of a sponge after it has been dipped in thick yellow fluid.

Kidneys weigh 390 gms., about 25% enlarged. Gross appearance not remarkable. Genital organs: Left ovary presents on section a cavity 30x20 mm. with dirty, yellowish, uneven lining and containing dull yellowish, purifrom material. Wall of cavity varies between 1 and 4 mm. in thickness. Right ovary present similar puriform cavity, 15x20 mm. Ovaries and tubes matted together with fibrous adhesions.

Smears from the liver abscess show Gram positive cocci in small clusters and chains up to 14 units (streptococcus and staphyloccoccus). Clusters show streptococcus hemolyticus and stapyhylococcus albus. No tubercle bacilli or ameobae found. Smears from one tubo-ovarian abscess show Gram positive cocci in pairs and chains. No streptococcus found in cultures, which show staphylococcus albus and Gram negative bacilli. Microscopic sections show chronic pulmonary tuberculosis with pneuomnia, chronic splenitis, subacute abcess of liver with toxic hepatitis, subacute toxic nephritis and tuberculous tubo-ovarian abscess.

Final diagnosis: Generalized peritonitis, multilocular abscess of liver, apparently due to pyogenic organisms, tuberculous tubo-ovarian abscess, secondarily infected with staphylococcus, streptococcus and Gram negative bacilli; chronic splenitis, subacute, toxic hepatitis nephritis.

It is our opinion the patient had an old tuberculosis of the lungs, a secondary tuberculosis of oviducts and ovaries, a secondary pyemic infection of tuberculous tubo-ovarian abscess and a secondary metastatic infection of the liver resulting in the pyemic abscess.

AN INTERESTING CASE OF ACUTE MANIA.*

HENRY ENOS TULEY, Louisville.

About the first of April, 1922, a patient was admitted to the psychophatic ward of the Louisville City Hospital with the diagnosis of acute mania. She was very violent and noisy and it was necessary to restrain her by means of shackles. During a period of perhaps twenty-five minutes, the longest I am sure she could possibly have been left alone, although she was shackled with her arms fastened with bandages to the side of the bed, she evidently brought her head downward to her hands and tore her left eye entirely out, bringing a piece of the optic nerve with it, the latter being found on the floor the next morning. She also destroyed her right eye by evacuating the contents of the socket. Her lips were considerbaly lacerated.

The case is of interest to me not only from the standpoint of the injury, but from the hospital administration point of view. I have been wondering whether or not an institution like the City Hosuital could be held responsible for an injury of that kind.

Dr. Wolfe and Dr. Pfingst, who saw this woman, stated they had never heard of such a case before and had never seen one similar to it.

There must have been at least one inch of the left optic nerve drawn out of the eye. Fortunately for the woman, death occurred four days later. I left the city about that time and went to Rochester. I did not know the woman had died until after my return. She died of exhaustion from acute mania, and probably acute meningitis as she ran considerable temperature.

DISCUSSION:

W. E. Gardner: The accident mentioned by Dr. Tuley happened the night of March 31, 1922, the day before I went on service. The patient was in the hospital, but I did not see her prior to the accident. When I saw her the next morning (April 1st) she was still quite violent and incoherent. While the patient had maniacal manifestations I was impressed with the fact that it might have been acute confusional insanity. I have never seen a case in which the patient did so much damage to herself, and how this could be accomplished with the woman restrained as she was is difficult to understand. Self-mutilation often occurs among the insane and especially in dementia precox, but I have never heard of an instance where the eyes were injured or the sight destroyed. It would be interesting, of course, to know just why this woman mutilated herself, whether it was because of extreme pain, or just what her hallucinations may have been.

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*Clinical report before the Louisville Medico-Chirurgical Society.

This woman developed considerable fever following the injury; there was some general rigidity of the body; there was a positive Kernig sign on both sides; there were other symptoms of importance. Necropsy was not permitted and no spinal puncture was made.

The husband of this woman was very much worried about the matter at first, but I had a talk with him and think he finally became reconciled and made no further complaint. He was given to understand that his wife had been restrained in a humane manner with bandages and the stretching of these probably allowed her sufficient movement so she could reach her eyes with her hands.

On account of the elevation of temperature, the development of rigidity, especially at the back of the neck, I was rather inclined to think she had some infection through the orbital cavity where the optic nerve was withdrawn. This certainly left a vulnerable point of infection and possibly the woman developed meningitis. She refused nourishment after admission to the hospital and died from exhaustion. The case is a very interesting and unusual one. So far as my experience goes it is a curiosity.

John J. Moren: Dr. Tuley spoke of the responsibility of the institution: The law requires the institution to exercise due care, but due care was exercised in this instance, and no one would ever think that such an accident could occur under the circumstances. Of course, the patient being a maniac would naturally lessen the responsibility of the institution. Had it been known by any one connected with the institution that the patient was going to injure herself, or had it been suspected that she would do so, and they had then failed to exercise due precaution, the institution might be held in some degree responsible. For instance, in a case of severe melancholia with threatened suicide, if the patient knew morphine was kept in the medicine chest of the institution, and if the people in charge of the medicine chest failed to keep it locked, then the institution has failed to exercise proper precaution and would become more or less responsible.

In the case reported I do nto see how the hospital could be held responsible for the accident and later death of the patient. The ordinary care and precautionary measures were exercised and that is all the law requires.

POLYCYSTIC KIDNEY: HYPERNEPHROMA—CASE REPORTS.*

By Irvin Abell, Louisville.

Polycystic Kidney—This rather rare renal lesion properly belongs in the domain of medicine rather than in that of surgery, since it is usually bilateral or soon becomes so, and further its course is uninfluenced by surgical procedure. It is frequently associated with similar cystic disease in other organs, notably the liver, and presents an obscure etiology.

Various theories as to its origin have been advanced; it is generally believed that it is due to a failure, during embryonic life, of proper union between the tubules of the renal vesicles and the primary collecting tubes. While it may occur at any time of life, it has been noted most frequently at three periods; first, during intrauterine development, when it may attain such size as to obstruct delivery; second, shortly after birth; the third and most commonly noted period being in the fifth decade. The symptoms presented, aside from tumor, are ordinarily those of an interstitial nephritis, life expectancy being as a rule from one to ten years from onset of symptoms.

The following case is presented, First, because of the comparatively rarity of the lesion, and second, because of the occurrence of a complicating infection which, in the writer's opinion, justified removal of the kidney.

Mrs. S. T. (Case No. 12328), widow, aged 52; mother of four children, oldest 21, youngest, 11; menopause at 45. Family history negative; personal history negative until inception of present trouble. Symptoms of present illness began in May, 1921, consisting of frequent and painful urination followed by chills and fever with pain in bladder and right renal regions. The pain in renal area was described as an ache with at times exacerbations of a colicky nature. She was confined to bed for five weeks, noting during this time the passage of bloody urine on three occasions, on one of which it persisted for four days. Digestive disturbances, as evidenced by fullness after eating, gas formation and sour stomach, was present during this attack, and continued in less degree afterward.

In June an enlargement was noted in right renal region, which persisted until she came under observation in December, 1921. At this time she thought herself better and had regained some of the weight loss occasioned by the acute attack in May; she still noted both day and night frequency with the passage of cloudy urine.

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*Read before the Jefferson County Medical Society.

Physical examination: Heart negative for murmurs, normal size; rate 90; blood pressure, 136-78; lungs, negative; teeth, much dentistry, condition fair; tonsils negative; thyroid negative; reflexes, active; eye, pupil active with rather well marked arcus senilis; left leg, moderate edema at shoe top, apparently due to varicose veins; abdomen, large and exquisitely tender right kidney, left kidney not palpable, remainder abdomen negative; pelvis negative.

Urine: Single specimen showed specific gravity 1011, acid reaction, 1 plus albumin, no casts, squamous and round epithelium, no blood, much pus.

Blood: Hemaglobin (Dare), 78; erythrocytes 3,940,000; color index, 1; leucocytes, 10,300.

X-ray: Stomach and duodenum, negative; kidneys, uretus and bladder negative for stone. Cystoscopy: Bladder capacity, 16 ounces; slight trabeculation with definite inflammation. No 5 catheters readily entered both kidneys, right kidney urine showing many pus cells with occasional mass, occasional erythrocyte, with many round, caudate and squamous epithelial cells. Left kidney urine shows occasional mass pus cells, many erythrocytes (traumatic) squamous, round and caudate epithelium.

Differential functional: phthalein (intravenous) appeared in right kidney urine in 9 minutes, amount excreted in 30 minutes 15 c.c containing 5% of the dye; appeared in left kidney urine in 7 minutes, amount excreted in 30 minutes 25 c.c. containing 10% of the dye—5% of the dye recovered from bladder urine.

A rather severe reaction followed this examination, fever ranging from 101° to 104° F., leucocytosis, 17,000, 80% polymorphonuclears, with a perceptible increase in size and tenderness of right kidney. At the end of 10 days the hemoglobin 70%. was erythrocytes, 3,400,000 leucocytes, 10,400; polymorphonuclears, 80.2%. Urine, specific gravity, 1010, albumin, no casts, abundant pus; right kidney large and exquisitely tender; left kidney negative to palpation; combined phthalein, 24%. The condition was thought to be a bilateral pyelonephritis with right pyonephrosis.

It was considered best to drain the right kidney through a lumbar incision, reserving the idea of nephrectomy for a later date if her condition permitted. This was done under gas anesthesia, exposing only enough of the kidney to allow of incision and evacuation of approximately eight ounces of pus. Following this the fever subsided and patient's general condition improved; the size of the right kidney diminished but a palpable tender mass persisted. Sixteen days after the nephrotomy, the right kidney was exposed under gas-oxygen-ether, and upon delivering it into incision, its polycystic nature was recognized for the first time. Since the left kidney was not palpably enlarged, had shown a higher functional ability and but mild evidence of infection, it was inferred that the abscess formation was limited to the right one and it was accordingly removed.

Microscopic diagnosis: chronic pyelonephritis with multiple cysts; size 13 by 7 cm. But a small area in one pole presents apparently normal kidney tissue.

Convalescence was tardy and accompanied by mildly uremic signs; 9 days after removal of kidney the urea nitrogen was 84, the non-protein nitrogen, 198, and the creatinine 11.1; mgm. per 100 c.c.; 21 days after operation the urea nitrogen was 32; non-protein nitrogen, 65, and the creatinine 5 mgm per 100 c.c., and upon discharge the urea nitrogen was 14, non-protein nitrogen 27, and creatinine 2 mgm. per 100 c.c.; while the phthalein out put was 20%. She was free of fever and was gaining in weight and strength. It is clear that we have relieved her of a suppurating kidney and equally clear that the function of the remaining one is below par, most probably due to polycystic degeneration.

Hypernephroma: Mrs. W. L. (Case No. 12444), aged 47, widow, 1 child, menopause at 40. Family history negative, personal history negative for severe illness other than typhoid fever at 27.

Present illness began three years ago, first noting the passage of bloody urine. The hematuria was intermittent, each attack being profuse and uninfluenced by rest, exercise of treatment. Following each blood loss she presented pallor, weakness and weight loss, but in the absence of early recurrence of bleeding she rapidly regained weight and color. During prolonged attacks of bleeding she experienced pain in right renal area, at times of colicky character, accompanied by urinary frequency and dysuria.

Physical examination: Heart and lungs negative, pulse 120, blood pressure 144-82, skin and mucosa show marked pallor; reflexes active; teeth good, pelvis, negative. Abdomen: Right kidney large, tender, movable and three inches below costal arch. Left kidney not palpable, remainder of abdomen negative. Urine: Three plus albumin, no casts, many blood cells and abundant pus. Cystoscopy: Bladder normal, ureteral orifices normal, readily admitting No. 5 catheters. Right kidney urine, round squamous epithelium, large masses of pus cells and many erythrocytes. Left kidney urine, squamous epithelium and occasional leucocyte.

Differential functional: Intravenous phthalein appeared in right kidney urine in 3 minutes, 40 c.c. urine in 30 minutes containing trace of dye; appeared in left kidney urine in 2½ minutes with 39% of dye in 390 c.c. urine from left kidney and bladder in 30 minutes.

X-ray: Kidneys, ureters and bladder negative for stone with large right kidney. Blood: Hemaglobin (Dare), 35%, erythrocytes, 2,630,000, color index .6, leucocytes 9,600. Working diagnosis: Hypernephroma.

Patient was given a transfusion of 600 c.c blood, Brown-Kimpton method, and five days later right kidney containing yellowish tumor, 3 cm. in diameter, was removed. The tumor was encapsulated and presented no visibile evidence of extension or metastasis. Size of kidney 10 by 6 by 5 cm. Microscopic diagnosis: Hypernephroma.

Five days after operation blood showed hemaglobin 58, erythrocytes 3,750,000, color index .8, leucocytes 7,750. Eighteen days after operation blood showed hemaglobin 60%, erythrocytes 3,235,600, color index .9, leucocytes 8,100.

Recovery has been continuous, uneventful and apparently complete.

DISCUSSION:

D. Y. Keith: There is only one point I wish to mention in connection with the cases reported by Dr. Abell, and that is the diagnosis. In my opinion, purely from a diagnostic point of view, there is considerable value in pneumo-peritoneum in cases of this kind in that way getting a definte outline of the kidney. However, at the present time pneumo-peritoneum is looked upon with some disfavor because there have been a few deaths from it. I believe pneumo-peritoneum is going to be of value in the diagnosis of pelvic and renal tumors when greater perfection in technique has been attained and the proper amount of gas has been determined. It seems certain that a positive diagnosis can be made in that way.

The Roentgen-ray cannot be relied upon as a diagnostic measure in polycystic kidney. As an illustration I may mention that we recently assisted Dr. E. S. Allen in performing celiotomy for pelvic disease, and when he was ready to close the abdominal incision he carefully palpated the gall bladder region, the stomach and kidneys according to his usual custom. Much to our surprise he found that the patient had bilateral polycystic kidney. The patient was a woman twenty-three years of age with a thin abdominal wall and weighed about one hundred and ten pounds. We thought this was certainly a case in which polycystic kidney would be shown by the Roentgen-ray using Bucky diaphragm. Careful examination was made with negative result. The films were photographically perfect.

In examining renal tumors by the Roentgen-ray our ability to outline the kidney depends more upon the density of the kidney or of the neoplasm than upon the thickness of the overlying tissues.

Irvin Abell (closing:) In the history of polycystic kidney it is interesting to note that some surgeons have practiced nephrectomy as a primary operation. Henry Morris has recorded several cases of unilateral cystic disease treated by nephrectomy and at the time of his report two of his patients were living, one five years and the other seven years after nephrectomy. Yet we know from observation that the average expectancy of life in polycystic disease is from one to ten years, and almost invariably is it true that the disease appears in the remaining kidney and very frequently also in the liver. I have seen one case in which upon exploration both kidneys were found polycystic and the liver markedly so. I have seen one case in which the pyelogram made of the remaining kidney showed it to be perfectly healthy, so far as the pyelogram and palpation would indicate, yet we know that sometimes even a kidney which is apparently healthy so far as can be determined by pyelogram and urinary examination may be shown polycystic upon abdominal section.

As to whether or not one would be justified in performing nephrectomy as a routine measure for polycystic kidney when apparently unilateral. This is open to some doubt, since judged from the history in reported cases the disease is practically always certain to appear in the opposite kidney. In reality, polycystic kidney is not a surgical disease unless infection occurs, as happened in the case reported, giving rise to abscess formation.

While polycystic disease of the kidney may occur at any period of life, the three most frequent periods are: (1) During intrauterine development, instances having been reported in which the tumor attained such size that the fetus could not be delivered by natural means; (2) shortly after birth, and (3) in the fifth decade of life. One instance has been reported in which the fetal tumor weighed sixteen pounds, a perfectly huge kidney because of polycystic disease.

TUMOR OF THE PITUITARY, REPORT OF CASE.*

By Leon K. Baldauf, Louisville.

The following case is reported because of its unusual interest. Mr. W. S. B., aged fifty, farmer and plasterer. Complaint, impaired vision in the right eye. Family history negative. Post history negative. Present illness, dates from August, 1921, when a gradually increasing drowsiness developed. Patient at present may go to sleep at 6 p. m. and awaken at 6 a. m. fairly refreshed but ready for another nap after breakfast. This condition continues throughout the day. In spite of this lethargy, he has gained over thirty pounds. The impairment of vision in the right eye, slight at first, has now become marked. The patient complains of a peculiar discomfort in the head. Localized by him it is bitemporal to occipital. There is no severe pain, but there is an ache, described by him as a dull headache. He has never vomited; urinates frequently and drinks considerable water.

Physical Examination—A complete examination was made. Only the essential points in the examination will be mentioned. Patient well nourished. The increase in weight since August, 1921, has been particularly noticeable. Patient is very nervous and is somewhat irritable. The family say that at times he is very excitable. This is unusual for him.

Gross eye tests show a right temporal hemianopsia. He urinates frequently but the urine is amber colored, has normal specific gravity and except for a very few pus cells is negative. He has a tender prostate not particularly enlarged but denies gonorrhea. There is no suggestion of diabetes insipidus. X-ray examinations of the skull laterally show a sella turcica much enlarged, deepened with probably some erosion. Although good films were obtained, the sella was indistinct and indefinite in places. The other laboratory findings were negative, although blood sugar determinations have not yet been made.

With these main points in mind: (1) drowsiness, (2 increase of weight in such a short time, (3) right temporal hemianopsia, (4) increase in size of the sella turcica, (5) nervousness and irritability (6) sexual impotence. A diagnosis of pituitary tumor was made and operation advised. The patient was referred to Dr. Dabney for careful eye examination and for his opinion. I have asked Dr. Dabney to discuss the case.

DISCUSSION:

S. G. Dabney: This man had the appearance of atrophy of each optic nerve, which is characteristic of disease of the pituitary, and is usually seen in such cases. However, the difference in appearance of the nerves does not really correspond to the difference in the man's visual power, yet that is not very rare. The right nerve seemed paler than the left, but there was not much difference in the acuity of vision. Direct sight of the left eye was 20-40; the best I could get in the right eye was 40 at a few feet. What seemed a little out of the ordinary, but not so very rare, was that the field of vision was good. This was carefully tested on two consecutive days not only for the actual visual field, but also for blue, red and green, and the field of vision in his left eye, the one with which he sees the best was very good. It is stated that it is not uncommon for the field of vision to vary from day to day, and it is possible when this man is again examined the field of vision in the left eye will be found quite different. This is difficult to understand. The field of vision may vary with the position of the enlarged pituitary, or perhaps the increase in fluid in the skull will vary from time to time and thus cause variation in the visual field. This man did not have the same degree of reduction in vision in his left eye that was present in the right. He did not have the typical bitemporal hemianopsia, which is one of the most characteristic manifestations of pituitary lesions, but this may appear later. I do not know in what proportion of cases such variations occur, but such conditions are not very uncommon. In his right eye his vision is practically limited to the counting of fingers at distance of a few feet; he has decided homonymous hemianopsia. Although he does not present the typical picture of disease of the pituitary, as he has not that typical bitemporal hemianopsia generally associated with pituitary disease, notwithstanding that I believe he has disease of the pituitary body. He has practically lost the sight of the right eye before the field of vision has become much changed in the left. I do not believe this case represents what the books call essential atrophy of the optic nerve. It would be very uncommon to have such manifestations in essential optic atrophy, that is, to have the temporal half of the visual field destroyed without great impairment of the nasal half. One of the characteristics of essential primary atrophy, or the atrophy we associate with tabes dorsalis, is concentric atrophy—the entire visual field being affected—that is not present in this case. However, my judgment is that Dr. Baldauf's diagnosis is correct, though I must frankly admit the man does not present the typica locular symptoms usually noted in pituitary disease.

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*Read before the Louisville Medico-Chirurgical Society.

In this connection I recall a young man exhibited before this society many years ago who was afterwards operated upon. He was blind in his right eye but was never blind in his left. The field of vision in his left eye was still good on the nasal side. I told him that I could do nothing for him. He was examined by two or three roentgenologists and we all agreed that he had a pituitary tumor. He was operated upon by an Eeastern surgeon with successful result. That was one of the first cases of the kind coming under my personal observation. Since then I have seen four other similar cases. In the first case mentioned the diagnosis was accurately made; the surgeon operated by the nasal method of approach and I think preserved the nasal field of vision of the left eye at least for a considerable time. It was marvelous how well the man was able to get about with the limited vision he had. The man was blind in one eye when I first saw him, the other eye had the nasal field of vision fairly well preserved, caused by disease of the pituitary body.

Another patient (a woman) was seen by me in consultation with the late Dr. Wm. Cheatham. I looked after her for some time and made several careful examinations. The diagnosis of pressure on the sella turcica was certain and the diagnosis of pituitary tumor was made. She was operated upon in Paris, France, and her vision was still fair when she returned home. Unfortunately this patient died of pneumonia several years later. She was examined repeatedly and her vision remained fairly good. I have seen two or three other cases of pituitary disease, but these two impressed me as being the most interesting.

I saw some time ago a very interesting case of this character in consultation with Dr. A. O. Pfingst. I think I am correct in saying that the man had exophthalmos from pressure of a pituitary tumor. At the time, however, I was skeptical whether this was possible. It was found on investigating the literature that every now and then a case had been observed where exophthalmos occurred from pressure by the pituitary. This patient was operated on in an Eastern city but died on the table.

One of the best papers I have seen on this subject (Pituitary Disease) was by Benedict of the Mayo Clinic published about a year and a half ago. He has had considerable experience and wrote a very interesting article. He believes that a good many cases of optic atrophy are due to pituitary enlargement which are erroneously diagnosed as simple progressive atrophy.

As to the treatment: I believe what Cushing and several other surgeons have done in these cases is to remove only a part of the pituitary simply to relieve pressure. I do not understand that in any instance the entire pituitary gland has been extripated, but I am not especially well informed on this.

Returning to the case reported by Dr. Baudauf: I am of the opinion his patient has pituitary disease though I must admit he had no bitemporal hemianopsia when I saw him. It does not seem unlikely that this will develop later and there will be gradual failure of vision in his left eye.

John W. Moore: I was very much interested in Dr. Baudauf's report and while listening to him endeavored to correlate the symptoms detailed into a syndrome of some kind, for example Froelich's syndrome. However, according to the history many of the symptoms of Froelich's syndrome were absent. We know that in practically every case of tumor of the pituitary region Froelich's syndrome calls for headache, also reduction in the field of vision, etc., as stated by Dr. Dabney.

I would not be surprised if further observation would reveal some evidence of polyuria in the case reported. Dr. Baldauf's report is very interesting and his diagnosis may be correct although the history is not typical of pituitary disease.

It would be interesting to see what the test for sugar tolerance shows as well as the basal metabolic rate.

John J. Moren: I understand Dr. Baldauf's patient showed no motor disturbances at any time. From the symptoms described, viz., drowsiness, beginning atrophy of the optic nerve, slight headache, etc., I would be inclined to make the diagnosis of encephalitis. In the absence of other symptoms than those related this would seem to me the most reasonable conclusion. The sugar tolerance test may throw some further light on the question of diagnosis.

Leon K .Baldauf (closing): I never once thought of encephalitis in the case I have reported. Outside of the eye symptoms, which I admit are somewhat unusual, the case seemed to me to be typical of hypopituitarism. The great increase in weight, the drowsiness, sexual impotence, are all typical. He does not sleep like a man with encephalitis; he does not want to sleep all the time; he will retire and sleep soundly all night; then after breakfast he is ready to sleep again; he does not relapse into sleep immediately after being aroused as do patients with encephalitis.

I believe the man has a pituitary tumor and as result there is diminution of the pituitary secretion; the pituitary changes have been of gradual development and we now have hypopituitarism as evidenced by the great increase in weight and drowsiness.

Froelich's syndrome, as mentioned by Dr.

Moore. is a syndrome described by Froelich several years ago relates mainly to pituitary disease as noted in the young. It has been noted, however, that the Froelich syndrome is close kin to hypopituitarism in the adult.

Knapp has mentioned cases of pituitary disease where there was almost perfect vision in one eye. Cushing has also found that in some cases of pituitary tumor there was reduction of the visual field on the nasal side on the one hand and of the temporal side on the other.

I agree with Dr. Dabney that probably within a short time this patient will have involvement of the other temporal side and will lose his vision unless something is done. I do not know, of course, what the result will be if the man is operated upon. Dr. Dabney advised that an operation be undertaken and I agreed that it would be the wise thing to do.

The patient is well nourished, he has gained markedly in weight during the last few months, he has no symptoms excepting those outlined. There have been no nervous manifestations at any time. We know that in the majority of instances various nervous symptoms are noted following encephalitis. The blood Wassermann was negative; spinal puncture was not made.

THE RELATION OF WATER TO THE PRODUCTION OF GOITER.*

By V. D. Guittard, Maysville.

Goiter, an enlargement of the thyroid gland, is one of the most ancient ailments of man. It is known to antedate the Christian era. The writers of ancient Rome refer to the Alps as a region where it was especially prevalent. It may be mentioned pari passu that the great incidence of goiter in this region has continued to the present day.

In view of the great number of registrants disqualified during the World War on account of this disease, it may be well worth while to institute an inquiry into the origin and cause of goiter. It was an important factor in the reduction of man power in the United States and the Allied powers.

It is self-evident that goiter is produced by some agency that interferes with the normal functioning of the thyroid gland.

For a better understanding then of the problem it will make for clearness to find out just what this function is.

Physiologists have demonstrated by a long series of animal experimentation that the thyroid gland secretes a substance which circulates in the blood and is necessary to normal growth, repair and function. Specially it regulates the oxygen intake and the CO_2 output. It maintains the constituents of the blood at a proper level.

It maintains the efficiency of all cells and thus speeds up every bodily function.

It has been well said, "The thyroid gland is the draft to the fire, its iodine is the match that kindles it."

In all times potable water has been ascribed as the cause or agency by which goiter has been transmitted. The common people always have believed this.

It is a matter that cannot be treated lightly, for as in the case of malaria, which the people ascribed to the maism emanating from swamps. Science later verified this belief in a most striking manner. The miasm, however, proved to be the ubiquitous mosquito. Just so the common belief that there is a direct connection between water used for drinking purposes and goiter has incontestably been shown by an unbroken chain of evidence.

However, it may be stated that the direct causal agent has not yet been isolated.

The object of this study is to review the most tenable theories as to the etiology of goiter and observe whether these fit in with the geographical distribution of the disease. The existence of the so-called "goiter belts" can be accepted without question. The Alps in Switzerland; mountainous regions in France and Italy long have been known to be the seat of this affliction. In certain sections of Derbyshire, England, it is so prevalent that it is known as "Derbyshire neck."

In the Western United States and Canada there is a region extending from British Columbia to northern California. The regions about the Great Lakes, especially Northern Minnesota and Michigan are notable for the high percentage of goiter. In the foot hills of the Appalachian system, we find goiter endemic in North Western Pennsylvania, where certain sections are affected to the extent of 30% of the population. In Tygarts River Valley, West Virginia, 50% of the inhabitants are affected. In the foothills of the Himalayas in Asia there is a great frequency of this disease. There is a great zone of goiter beginning in Mexico and extending with increasing intensity through Central America and South America as far as Chili.

In Pedmont two persons out of three are affected. In the mountainous districts of Norway, Sweden and Finland it is very prevalent. In 1900 the total number of people with evidence of goiter in France was estimated at 400,000.

In Houghton County, Michigan, 26,694 goiters were found among the registrants during the late war of which 5,500 were of a disqualifying nature. In the upper peninsula 98,665 were found, nearly one-fourth of which were disqualifying. At the Newberry State Hospital, Michigan, 28% of the patients have goiter, 5.8% of the cases have developed since admission.

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*Read before the Mason County Medical Society.

At the Kingston, Canada Insane Asylum, 228 patients out of 600 were found to be goiterous (Osler).

Sufficient instances have been cited to show that goiter is very prevalent, almost universal, and undoubtedly is one of the most widespread disease on the face of the earth.

The inroads it makes in regard to decreasing the efficiency of its innumerable victims is a problem that should receive the serious attention of every sanitarian and sociologist.

Surveying the affected regions as a whole and to discover if possible some rule, some law or some rate of incidence, we find it is a disease associated in a striking manner with hilly or mountainous districts. In Switzerland, where all the cases occurring among conscripts for the period of thirteen years were carefully mapped and plotted, it was at once evident that the greater number of cases occurred in those who dwelt at an elevation of 600-1,000 meters, this is considered a medium height. These findings conform to the observations that have been made in this country.

It is then to these elevated regions, and the valleys interspersed among them that we must look to find the etiological factor in goiter. Another striking fact in connection with a general survey of the goiter areas is that they are in general quite distant from the sea; this we shall see is of importance in support of one of the most tenable theories.

A fact that cannot be overlooked in a study of goiter is brought out by the general survey, that the goiter infested regions as a rule are underlaid by rocks of aqueous formation, and not of an igneous character, and sedimentary limestone deposits seems to be the chief geological characteristic of the goiter belts.

And what follows from the last statement, goiterous regions almost invariably are supplied with soft water.

To sum up then the findings from a general and broad survey:

1. Goiter occurs mostly in mountainous or hilly regions.

2. Goiter is found chiefly in areas underlaid with limestone rock.

3. Goiter occurs chiefly in those people supplied with soft water.

Now, after summing up what may be learned from a general survey of the question, we can proceed to examine the prevalent theories in regard to the cause of goiter and ascertain if any of them will fit in with these conclusions. The theories in regard to the cause of goiter are innumerable, and it would seem that only those that relate to the known function of the thyroid gland need to be considered.

That it is caused by auto-intoxication from the gastro-intestinal tract has not been verified. A series of patients in Swiss hospitals were treated with intestinal antiseptics with no appreciable benefit. That it is not a transferable, transmissible, contageous disease is shown from the results of the study of the Swiss recruits mentioned above. There did not seem to be a greater number among those who came from crowded towns and villages. On the other hand farmers and dairymen were most often affected. The rate from year to year also showed such a variance and fluctuation that would preclude any contagious element.

In Switzerland the classical home of goiter, a study in reference to animal refuse being the source and medium of the organism or agent producing goiter has resulted in negative results.

It has been noticed that tourists seldom acquire the disease, showing that a long continued action or influence of the specific element is necessary.

In Switzerland, since it is there where most prevalent, the most intensive study of goiter has been undertaken. It has been noticed that Swiss living in shaded valleys have quite different mental and physical characteristics than those living on sunny slopes. The former are dull, plegmatic and heavy; the latter quick witted, lively and lean.

The influence of sunlight then also has been thought to play a role. It is well known that sunlight has a bacterial action at a depth of two meters in a body of water. It has been demonstrated that at a ten meter depth in a quiet tropical sea the bacterial content is 10,000 times that of the surface.

The effect of sunlight, however, can be dismissed as a factor in the prevention of goiter since it can only have a general beneficient action under all conditions, Crotti has studied and summed up the results of investigations of 348 authors on this subject and finds that water is the best proven factor in the production of goiter.

Studies made by O'Day in this country show that practically all the goiter areas are supplied with soft water. Three regions include those in the West, around the Great Lakes, and in those belts found among the foothills of the Appalachian system.

The Indians living along the southern shore of Lake Superior were formerly greatly affected with goiter. They ascribed it to the use of "snow water" which was used in the winter by them for drinking by melting snow.

The source of water used at the Newberry State Hospital, Mich., is from deep wells driven down to limestone rock. It is well known that crevices occur in this kind of geological formation and the causal agent might be transmitted quite a distance through these channels. At the Insane Hospital in Ontario mentioned above, the rate of goiter was markedly decreased when other sources than the St. Lawrence River were utilized for potable water.

It has been demonstrated without a shadow of a doubt that there are certain springs in Lombardy and certain wells in France called goiter springs and wells that the conscipts resorted to and drank their waters to produce goiter and thus evade military service.

Professor Kocher by a series of experiments upon rats and mice with the use of the water from goiter producing wells induced the same disease in these animals. When the people in Switzerland were convinced that the water from a certain well or spring was the cause of goiter they quit its use and goiter to a large extent disappeared from that locality.

In Vienna, Austria, the city was provided with a new pure source from the Schneeberge, eighty-five miles north of the city. The rate of typhoid fever was practically eliminated together with other gastro-intestinal diseases, but goiter has increased 200%. In the Gilgit district in India a study of eight adjacent villages, all of which are infected with goiter was made while another village in the same district takes its water from a spring and was found free from goiter. It cannot be doubted that very beneficial results obtained in Italy and Switzerland by the introduction of good drinking water in goiter infected localities.

It may be stated as a corallary that along with the greater frequency of goiter in hilly and mountainous regions, that the water table is nearer the surface in these areas and thus the water is subjected less to the process of natural purification and filtration. It is largely then a surface water that is used, one that is liable to carry with it any surface contamination may also be a factor in these regions underlaid by limestone or admoite deposits, since the water is passed through crevices and not influenced by natural filtration through the soil. Instances might be multiplied in great number where the water invariably was a direct influence on the production of goiter. But what element or substance in the water is the casual agent? That is the crux of the question. It has been definitely proven by scientific investigation and observation that certain water will produce goiter. This is the most tenable hypothesis. How then are we to arrive at a working theory for the identification of the actual agent?

The inductive theory holds in all branches of scientific research. We must pass from the known to the unknown. A thing that is definitely, and absolutely known is that small doses of iodine will retard, prevent and cure cases of endemic goiter, occurring in adolescents.

In Switzerland it has been proposed as a state measure that all school children be given curative and prophylactic doses of iodine in the form of iodide of sodium or of iron.

In Akron, Ohio, comprehensive work along this line has been done by Marine. There has been a marked recession and dimunition of goiters following a consistent and regular treatment by sodium iodide in the school children of the city. Animal experimentation also bears out this clinical result.

It is then to a lack of iodine in drinking water to which indications point unswervingly as a potent cause, if not the chief cause of goiter. Does not the geographical distribution of goiter, generally distant from the sea point to the same factor. The sea coast countries are not greatly affected by goiter. The air and flora and fauna of these countries are saturated to the point of normal content with iodine. The inland countries and the air in countries with a high altitude suffer the same lack. The upper reaches of the air are deficient in iodine as well as all animal and vegetable growth in inland countries, on account of their distance from the sea. The same lack then must prevail in all waters in these regions. Physiologists undoubtedly have proven that the thyroid gland is the repository and distributor of iodine in the body. Therefore, if it lacks the normal amount of this element necessary for the normal functioning of the human body, it will react in an abnormal manner and result in this hyperplasia called goiter.

Fish kept for a time in water that has not been changed will develop goiter. This condition can be removed by placing them in running water or by adding a small amount of iodine to the water. Indeed many fish in the Great Lakes are affected with goiter.

The few instances in literature of goiter produced by hard water may be due to the fact that one function of the thyroid gland is to adjust the calcium content of the blood; so that if the gland is overwhelmed with an excess of calcium it may be easily seen that hyperplasia of the thyroid might be caused.

Whatever the agency that produces goiter may be due to, filtration has no effect, for Kocher in his experiments showed that the filtrate of goiter wells produced the same disease in rats and mice.

By dialysis it has been shown that the substance that remains on the dialyzer will induce goiter in animals, thus pointing to the colloidal nature of the infective agent. All these conjectures and theories may have a grain of truth in them. Goiter may be caused by one or all of the agencies given. But the purpose of this paper was not to find the direct causative agent of goiter, but to show all verified instances that might lead to the assumption and to the proof of the theory that whatever the cause, it is transmitted by drinking water. This has been amply and convincingly done by a host of investigators and cannot be questioned.

And finally in Switzerland and elsewhere when the goiter bearing water has been boiled it loses its power to produce the disease. Whether the boiling has only a general sanitary influence and significance cannot be definitely stated.

It is a well known fact that continued use of boiled or distilled water has a deleterious effect upon the mucous membrane of the gastro-intestinal tract and so this method cannot be resorted to universally or indefinitely as a prophylactic measure.

However, the premise that water seems to be the carrier of goiter is well substantiated, and it is left to future laboratory experimentation to discover and isolate the specific agency in the production of this disease.

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Viability of Spirochaeta Pallida.—From the experiments made by Lacy and Haythorn it is evident that spirochetes kept in serum or moist tissue, either human or animal, may retain slight motility as long as three months or more. Complete drying is probably fatal to the Spirochaeta pallida, since each of our rabbits inoculated with dried spirochetes on scalpels, failed to develop syphilitic lesions, Spirochaeta pallida may, and in one case did, remain virulent in necropsy material for twenty-six hours or longer.

MEMORIAL ON THE LIFE OF DR. ST. JOSEPH BUFORD GRAHAM.

By J. G. Carpenter, Stanford.

Dr. Graham was born in Harrodsburg, Mercer County, Ky., July 5, 1864, died May 2, 1922, in Atlanta, Ga., of pneumonia, but had been an invalid three years, from nervous prostration. He was the youngest child of Dr. Christopher Columbus Graham and Columbia Buford Graham, the grandson of Col. Thomas Buford and Elizabeth Shropshire Buford, who removed from Bourbon County, Ky., in 1835, and bought the large farm on Dix River and Crab Orchard and Lancaster pike, three miles north of Crab Orchard, Ky.

Dr. Joseph Graham was a nephew of Mrs. Margaret Gormley, Donaldson, Higgins, Raymond, Tohmas, Clay, Joe and Ambrose Buford, a cousin to Messrs. Joe, Sam and Raymond Haselden, Mrs. Adelia Woods, Mary Gormley Morgan and Mrs. Lizzie G. Cook. Gen. Abe Buford, U. S. A., 1861-5, was a relative; Hon. J. S. C. Blackburn was a brother-in-law; his uncles, Clay and Joe Buford, were Confederate soldiers of the Civil War, and belonged to Col. John H. Morgan's cavalry. Joe Buford was killed at the battle of Mill Springs, Ky. Clay Buford was severely wounded and lost an eye, but on recovery returned to his regiment and was finally captured on the Ohio raid with Col. John H. Morgan and sent to Camp Chase and Douglas with other noble Confederate soldiers, suffered many hardships and semi-starvation at the hands of the Yankees.

Dr. Graham lost his mother when he was three weeks old and never knew the joy, happiness and true love of a fond and devoted mother; he was nursed by Mrs. Mary Stuart, Crab Orchard, Ky., a good neighbor and a Godly friend to his mother, who loved the motherless children, as her own, and though she had a large family of her own, there was always room and plenty for the orphan boy or girl, in her house. He was born with a fine heredity and by training and association had the best environments which he duly appreciated.

His aunts, Mrs. Margaret Gormley, Mrs. Raymond and Mrs. Donaldson, contributed much of their time caring for the precious child and rearing him the way he should go in the future years to come and he did not depart from his early training.

Dr. Christopher Columbus Graham, the father of Dr. St. Joseph Graham, lived to be 100 years of age, was 77 years old when he was married the last time, and died at Louisville, Ky. During the Civil War he was the owner and superintendent of the mineral springs at Harrodsburg, Ky., and he sold this valuable property to the U. S. Government for one hundred thousand dollars. Dr. Graham, Sr., was a scientist and renowned as a historian, geologist and writer, and was the founder of the Louisville Public Museum and Library. He lived and died one of Kentucky's greatest men. At 95 years of age Dr., Graham, Sr., walked twenty-five miles per day, studying geological formations and seeking geological specimens and believed a man was never old until he thought so himself.

When Col. Joe S. C. Blackburn was in the U. S. Congress, Dr. Joseph Graham was appointed to a large Indian Agency in the West as its physician and surgeon by President Cleveland. Here the doctor made a special study of tuberculosis in the Indians, resigning this position and needing prolonged rest and recreation, he returned to Crab Orchard Springs and met Miss Mollie Maher, of Lexington, and at once began an ardent courtship, they were married October 2, 1889. She now survives him. She made him a good wife, was in deep sympathy and high appreciation of Dr. Graham's professional career. She knew, and learned, it means much to be a successful and ideal doctor and so to be the wife of such a doctor. Unfortunately no children were born to this couple. After Dr. Graham's marriage he removed to Savannah, Ga., having been appointed to the Hospital Marine Service and later established a large lucrative practice and also became editor of the Savannah Medical Journal which he edited with marked ability and success.

He was called upon by both the Republican and Democratic parties to run as an independent candidate. He did so, and was elected by a large majority to the office of councilman and served two years.

He lost his valuable property by fire; in 1918, in Savannah and moved to Atlanta, Ga., for a prolonged rest and to regain his health, which he lost from overwork, exposure and burning the midnight oil in study and scientific research; he was a scientist and made valuable contributions to his profession, bacteriology and diagnosis; so engrossed was he with the scientfic side of his profession that he seemed to forget the personal business side of life. He strived to be a success in life and a benefactor to the human family and his beloved profession. The last few years of his professional life were devoted to the study of pellagra, and he discovered an antigen, "so-called," for the treatment of pellagra and had effected many cures with this remedy. Fortunately for the profession, and humanity this formula has been preserved and will be given at large to the medical profession, to bless and cure the human family from year to year.

Dr. Graham realized early in his professional career, it means so much to be a good man and doctor, a skillful, scientific doctor and surgeon, and to be an ideal doctor, possessing all those attributes that belong to a Christian man and American patriot and skillful, scientific, meritorious doctor; this should be the goal of every physician who enters this profession, otherwise step down and out of his profession, write after his name failure, and hear the sentence passed, too late, too late, you cannot enter now! Never more! Never more!

Dr. Graham was a graduate of the Louisville High School, University of Louisville Medical Department, New York Poly-clinic, University of Berlin, Germany, and he was recently elected member of the Royal Society of Public Health, London, England, an unusual honor, and the degree of Doctor of Tropical Medicine was conferred by the Harvard Medical College in 1918. As a boy he was a charming, lovable lad, with rosy cheeks, blue eyes and brown hair, superb physique, a manly youth, a Chesterfield in manners, the model young man, the ideal student and athlete, and was also a good sailor. At Savannah, Ga., he rescued thirteen sailors from the Canadian ship, Mary Chapman, one dark stormy night. The ship was not seaworthy and the crew was given up as lost. The Canadian Government, the U. S. Government and the American Cross of Honor conferred gold medals on Dr. Graham for his heroic service and rescue of the sailors.

Dr. Graham always went about doing good, had more concern for the welfare and happiness of his friends and the human family than for himself, he was in truth the Good Samaritan and freely cast his bread upon the waters, to see it return after many days a larger loaf. On another occasion when a steamship was lost at sea, and the life boats were all taken, Dr. Graham as a last resort threw a little girl into the ocean, and jumped in after her, being an athlete and a fine swimmer, he placed her on his back and swam with her until both were rescued many hours later.

Dr. Graham was an ideal child, youth, man and citizen, made numerous friends quickly, wherever he sojourned, though he adopted the State of Georgia, Savannah and Atlanta as his homes, he always had a longing to live and die in Kentucky, and his request in life was to return his body to Kentucky for burial, on Cemetery Hill, Crab Orchard, Ky. He was an exempler of good deeds, kindness and successes.

Dr. Graham's friendship was so pure, gentle and kind, unselfish. It was the good he could do for his friends and patients and profession.

A large crowd of friends in sorrow helped to place the body in its sacred resting place to await the resurrection morning "Over there, in the Land of Somewhere, in the Bright Beyond," where there is rest, peace and happiness and life forever to all good doctors. Dr. Joseph Graham will meet his and our loved ones, who have crossed the river and those sainted medical men and surgeons—Joshua Taylor, Wesley, Hawkins Brown, William Lane, Cowder, John Ouchterlony, George B. Hunn, Pleasant Woods Logan, George W. Bronaugh, Spillman, Ancil Price, John Wyeth, William Roberts, Richard Gilbert, William Bailey, William Cheatham, Nicholas Seenn, Abraham Miller Carpenter, last but not least, Dr. Joseph McCormack and Joseph Price.

May every person who reads this "Memorial" get a blessing and press on while time is called today to greater and nobler achievement in this life and reach the Heavenly goal in the sweet by and by. Dr. Graham was a loyal Kentuckian, American patriot, and at all times, by his good deeds, a candidate for the Kingdom of Heaven. No nobler man, no better student and citizen ever lived in the East End, or in Kentucky than he and he was a hero of Spartan courage. My dear friend and doctor, we shall meet again, beyond the "Great Divide," and renew the happy days, the golden hours and friendships of former years. In conclusion, the writer and friends did not say a sad farewell when the casket was given its last resting place, but in the brighter clime will meet you and say, Good Morning.

THE CLASSIFICATION, TERMINOLOGY AND ETIOLOGY OF TUMORS.*

By Stuart Graves, Louisville.

On first thought it may seem to you that a talk about tumors, particularly about their classification and terminology, is hardly the kind of a talk to give before a body of experienced medical men. However, close relations with students and surgeons during ten years of laboratory experience in various hospitals have led me to believe that occasional "get-together" talks on apparently commonplace subjects of this kind have considerable value. There has been great confusion in the classification and terminology of neoplasms and any attempt to simplify either or to promote their correct usage seems justifiable. In this talk no claim is made for originality in either direction; only an effort to review the subject briefly and then to suggest how a better understanding may be brought about.

In pathology, as in all other medical sciences, literature is encumbered with many terms established so long ago that their original meaning is obsolete. One hears some times a protest against the use of men's names in designing organs or conditions; as, for example, the Fallopian tube, the Eustachian tube, Ehrlich's "side-chain theory," the Pasteur treatment, Virchow's cellular pathology, Hansen's disease, Flexner's serum. Far better that our minds be constantly reminded by such terms of the research and contributions of these great men than that we should continue to use such inexact, incorrect, ambiguous and often misleading terms as "spindle-cell sarcoma," "giant-cell sarcoma," "fibroid," "perithelioma," "psammoma," and many others which, except by long association, give no hint of the real nature of the neoplasm to which they are applied. Lack of exactness in medical terms, as elsewhere, is likely to indicate lack of exact knowledge. In days gone by many such terms were invented on that very account and, as our knowledge has grown greater, they have stuck to our confusion. "They have become heirlooms not easily cast off." Our Anglo-Saxon forefathers were unfamiliar with centimeters and decigrams; our grandchildren will be forced to look into a dictionary to learn about inches, ounces and minims. Just so our knowledge of tumors is being standardized and international terms based on exact sciences are becoming better known.

Originally carcinoma was the term applied to all malignant tumors. It is derived in almost pure form from the Greek word "*karkinoma,*" from "*karkinos,*" meaning crab. The name is suggestive of the arms or tentacles which invade their surroundings and vividly conveys the idea of infiltration, one of the chief signs of malignancy. So other names arose, especially before the invention of the microscope, before the discovery that the cell is the unit of all plant and animal structure, and before the development of the science of embryology.

The first great division in malignant tumors came when the term "carcinoma" was reserved for all malignant tumors of epithelial nature and the term "sarcoma" used for all other malignant tumors. "Sarcoma" comes from "*sarkos,*" genitive singular of "*sarx,*" the Greek noun for flesh, and "*oma,*" the Greek word for tumor; literally, a tumor of the flesh. This term was used because of the resemblance of almost any rapidly growing, excessively cellular, malignant neoplasm, other than carcinoma, to the homogeneous, translucent appearance of fresh flesh, like that of the fish. With these terms for malignant neoplasms, all sorts of terms were selected for benign tumors, based on the location, color, shape, consistency, the name of some author, or some other feature which had nothing at all to do with its real nature. A few examples of such terms follow Fibroid, so-called, because of its often excessive fibrous stroma; hypernephroma, so-called because of the resemblance of its cells to those of the suprarenal; exanthoma, so-called because of the resemblance of its color to yellow, the Greek name for that color being *xanthos;* epulis, so-called because of its situation, from *epi* and *oulon,* Greek words for on and gum; adiposis dolorosa or Dercum's disease, so-called because of severe pains associated with fatty overgrowth about the time of the climacteric and described by Dercum; round cell or spindle cell sarcoma, so-called from their microscopic appearance, etc. Such examples might be quoted almost endlessly. To cite them all would be only to enumerate all the inexact terms, which for the reasons pointed out, have crept into the literature, usually before the exact nature of the tumors, particularly in regard to their histogenesis, was known. Now, as a matter of fact, a fibroid is not a fibrous tissue tumor at all; its tumor cell is the smooth muscle cell, and it is properly called a leiomyoma, from the Greek words *leiso* (smooth), *mus* (muscle) and *oma* (tumor). Hypernephroma is a malignant epithelial tumor whose type cell is usually like that of the suprarenal, and it is essentially a carcinoma, usually of adrenal cell type. Xanthoma is usually an endothelioma without sinuses, whose tumor cells contain fatty pigment. An epulis, often called a giant cell sarcoma of the gum, is sometimes a fibrous tissue tumor and sometimes chronic inflammatory tissue about particles of tartar; its giant cells in the first case are true multinucleated tumor giant cells, while in the last case they are foreign body giant cells formed from endothelial leucocytes and are attracted by the foreign particles just as they are about a tubercle or a bit of suture in a laparotomy wound. "Adiposis dolorosa" is probably only tumor-like local tissue abnormalities. A spindle cell "sarcoma" usually means malignant fibrosarcoma, but flesh-like tumors made up of spindle cells may be as well glioma, endothelioma, rhabdomyoma, leiomyoma or neuroblastoma.

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*Read before the Louisville Medico-Chirurgical Society,

How, then, shall tumors be classified and by what terms shall they be correctly designated? Obviously if the cause of tumors were known, an etiological classification would be best, as is the rule in infectious diseases. The next best scheme is a classification based upon the histogenesis and development of the tumor cell. A knowledge of the embryonic development of cells is essential. All pathologists seem to agree that tumor cells develop like normal tissue cells. The essential difference between neoplastic structures and normal structures is that the former grow without and beyond all natural laws which govern the development and relation of normal tissues. Anatomy and her daughter sciences, histology and embryology, have fairly definitely established the development, differentiation and inter-relation of nearly all normal tissues. Therefore, while it is not perfect or ideal, since tumor cells tend to grow like their normal prototypes, it is certainly most logical to use as a basis for classification the histogenesis of tumor cells in so far as we know it; not only because it is the simplest and most accurate now, but because it is most promising of future development along scientific lines. While the classification advocated herein is open to criticism and is not wholly approved by some authors, I believe it will "hold water," as lawyers say, better than any other. It certainly seems "tighter" against argument and that is what our legal friends mean. The classificaion is that given by Mallory. Until I learned it and worked with it the whole subject of tumors was confused in my mind. Perhaps that was my fault, but I have heard many older teachers say that they had suffered the same experience. At any rate, very few neoplasms cannot be interpreted in its terms. It is as follows:

TYPE CELL.	NAME OF TUMOR AND WHAT IT INCLUDES.
1. Fibroblast (connective-tissue cell)	Fibroblastoma (fibroma, fibrosarcoma)
1. Myxoblast (mucous connective tissue)	Myxoblastoma (myxoma, myxosarcoma)
3. Chondroblast (cartilage cell)	Chondroblastoma (chondroma, chondrosarcoma)
4. Osteoblast (bone cell)	Osteoblastoma (osteoma, osteosarcoma)
5. Lipoblast (fat cell)	Lipoblastoma (lipoma)
6. Leiomyoblast (smooth muscle cell)	Leiomyoblastoma (leiomyoma, leiomyosarcoma)
7. Endothelioblast	Endothelioblastoma
(a Blood vessel endothelium).	(a) Hemangio-endothelio-blastoma (hemangioma, angioma)
(b. Lymph vessel endothelium)	(b) Lymphagio-endothelio-blastoma (lymphangioma)
(c. Dural endothelioma)	(c) Dural endothelio-blastoma (dural endothelioma)

8. Lymphoblast (lymphocyte)	Lymphoblastoma (lymphosarcoma, malignant lymphoma, lymphatic leukemia)
9. Myeloblast (myelocyte)	Myeloblastoma (myelogenous leukemia, chloroma)
10.	(Myeloma)
11. Melanoblast (pigment cell)	Melanoblastoma (melanotic sarcoma, melanoma)
12. Rhabomyoblast (stricted muscle cell)	Rhabdomyoblastoma (rhabdomyoma, rhabdoymosarcoma)
13. Giloblast (neuroglia cell)	Glioblastoma (glioma, gliosarcoma)
14. Neuroblast (nerve cell)	Neuroblastoma (neuroma)
15. Epithelioblast (epithelial cell)	Epithelio-blastoma (adenoma, papilloma, carcinoma)

The etiology of tumors must be dismissed with brief consideration. Although great effort has been and is being made to discover the cause of neoplasms, the cause remains unknown. Contributing influences, such as age, heredity, traumatism and chronic irritation, are well recognized. Occasionally an enthusiast revives the parasite theory. Only a few weeks ago the newspapers published a story to the effect that parasites had been discovered to be the cause of tumors. This story was probably the incorrect interpretation by a layman of the experimental work by Bullock & Curtiss, under the Crocker Research Fund, with cysticercus fasciolaris and rats, as published about a year ago in the proceedings of the New York Pathological Society. Through the mediation of these parasites, sarcomata were produced in 210 animals. Commenting upon this work, Dr. Francis Carter Wood, director of the Crocker Institute of Cancer Research, in a recent letter to me, says: "To my mind the evidence is every day getting stronger that cancer is not due to a parasite, although, of course, the irritation caused by the presence of a parasite may easily start the cancer growing"—the same old influence of chronic irritation.

The broad biological view today is that the cell is the unit of all living beings and that, within even the simplest forms, physico-chemical processes proceed as the result of some unknown influence. That is life. Physico-chemical influences within and without the cell produce profound changes. With this hypothesis it seems reasonable to assume that no single cause produces neoplasms. It may be that cells displaced in the course of embryonic development, under the influence of physico-chemical conditions, start to grow and then develop beyond the restraint of natural physiologic laws. Lawlessness of growth is the distinguishing characteristic of all neoplasms. Such a theory can be applied to tumor growths, not only in man, but in lower forms of vertebrates and also in plants. Probably the secret will be worked out some day along the lines of physical chemistry, and the solution will not be a simple matter, but the logical application of laws as yet unknown in this rapidly developing and fascinating science.

There is little left to say in the time assigned, although the whole question of tumors is so important and so interesting that one could discuss it at great length. I have tried only to plead for a simplification of terminology on the basis of what I believe is the best classification.

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Wood, F. C.: Personal Communication.

DISCUSSION:

J. Garland Sherrill: It seems to me that the classification of tumors as given by Dr. Graves is about as simple as can be made. It is in the main similar to the one used by pathologists for a number of years and based on the same principle, the new growth assumes the type of cells in the tissue from which it springs and the classification is based on the embryonal type.

The characteristic of Mallory's classification is that he uses the term "blast" all the way through, which is simply nothing more than the embryonic name of the cell and it does not complicate the classification, but simplifies it to one studying the subject. I think it is as good a classification as can be employed and one we can all agree upon adopting.

There is in addition the question of determining microscopically whether the tumor is or is not malignant, and I think MacCarty's plan of determining this by three stages of hyperplasia is correct. His classification from a pathological standpoint is: (a) Primary epithelial hyperplasia (not carcinoma); (b) secondary epithelial hyperplasia (probably carcinoma), and

(c) tertiary or wandering hyperplasia (carcinoma).

I asked Dr. Graves the question whether neuroma should be placed among the connective tissue tumors or epithelial growths. We were formerly taught that nerve cells originated primarily from the epithelial structures. While they are differentiated and taken from epithelial cells still they probably go back there for their origin.

I agree fully with Dr. Graves that there is no one particular cause for all forms of tumors. It will be remembered that many years ago in the study of this subject certain tissue abnormalities, such as granulomata, syphilomata, tuberculomata, etc., were all classed under the heading of tumors, but one by one as the cause has been discovered these have been taken from tumors and placed in their proper classification. It may be possible that this will finally be the way in which the causation of tumors is discovered, ruling one class out by finding the cause and then another.

I was asked the question only a day or two ago what was the cause of a woman having a leiomyoma (uterine fibroma) and had to reply that I did not know. A great many authorities adhere strictly to the theory of Cohnheim, that there are some cells in the uterus, evidently more than necessary for ordinary purposes, and that these cells when the woman bears children are utilized in increasing or decreasing the size of the uterus, but when the woman does not bear children these cells take on abnormal growth. The majority of leiomyomata are found in women who have not borne children. This bears out Cohnheim's theory to a greater extent than any other type of tumor. His theory does not apply, however, to tumors occurring in the cervix as they are of epithelial type and must be classed as malignant growths. Therefore, in cervical tumors we must look for something in addition. It is well known that the cervix is subject to prolonged irritation because of congestion, lacerations, etc., and these facts must be considered in the production of carcinoma. The majority of cases of cancer of the cervix are found in women who have borne children. There must be something to stimulate growth of the cells which are apparently normal and thus cause the abnormal development or karyokinesis which takes place. It is not uncommon to see a sarcomatous tumor develop at the site of fracture a few weeks or months after the injury. The callus instead of becoming normal bone continues to grow and in some of these instances it is difficult to determine whether it is a simple hypertrophic condition of the callus or whether it is really a neoplasm. What is it than, under certain conditions, will produce a new growth in certain individuals following minor injuries? There must be something beyond that which we have yet found.

In plant life cancer has invariably been traced to the influence of an outside parasite. In some instances in human beings it has seemed almost positive that there is something of this kind. Take, for instance, this illustration: A wound may be perfectly free from bacteria and will heal readily without reaction. There may be a little redness, reaction, swelling and tenderness, and although there may be a few bacteria present the tissues overcome them. Let such a wound become infected and although it may heal there will develop in that sore a new growth, viz., a keloid which is a form of fibroma perhaps, and there must be something in the blood of the individual or in the local wound which produces sufficient irritation to make this develop into a tumor.

I have a man in the Louisville City Hospital at present who has an enormous keloid which developed from a burn, and under this keloid there is constant infection, suppuration, abscesses appear which have to be opened, so there is constant irritation augmented by bacterial growth, and it is possible that this is sufficient to account for the increased blood supply to the part with consequent cell proliferation and keloid growth. The cause of the karyokinesis or continued cell multiplication under such circumstances, i. e., the factor responsible for the production of tissue development in these cases, has not yet been discovered.

I saw a man recently who had a growth on the right side of his lower lip twelve years ago. It was removed and pathologically shown to be an epithelioma, the patient recoverd and was placed among my cured cases. Eleven years afterward he developed an epithelioma of the cheek below the left ear. The question, of course, arises is this a secondary growth to the primary lesion, or is it a new tumor developing without regard to the former neoplasm? If it were a secondary growth why did it not develop on the right side wher the primary lesion was located? Why did the secondary growth appear on the left side outside of the radius of lymphatic distribution in connection with the former tumor? Can the second growth be explained on the theory of irritation alone? The man works in a stove foundry where soot and dust may be a factor in producing irritation of the skin. The so-called "soot cancer" of chimney sweeps is familiar to all of us. These men oftentimes develop malignancy of the scrotum. It seems to me in the study of malignant disease we must not lose sight of these important featuress.

There are certain growths which are not malignant and which are developed by the presence in the tissues of cells in superabundance to the normal necessities of the part; in other words, in the normal mammary gland of the young girl who does not have the function of lactation we find small benign growths from the excess of these cells present. In women who have borne children we have a different type of growth, one which develops rapidly and infiltrating the deeper tissues becomes malignant in type. In certain cases irritation seems to play an important part in tumor development.

Some authorities have claimed that cancer has always pervailed in certain localities and especially along water courses. For instance, there is record of one district in Germany where clothes are washed in a certain stream of water, and there have been traced along this stream numerous cancer houses and cancer families; cancer has been found in different families living in different houses especially among those who handle clothing in this stream.

There are some instances on record where cancer has developed in both husband and wife. Such cases are infrequent, but they do occur. In a cancer hospital in London it is said that four interns developed cancer during a period of ten years. We must not overlook the possibility of contagion in these cases; that is, something entering the tissues during the handling of cancer patients which causes irritation and abnormal growth of the cells. This is one of the strongest arguments in favor of the parasitic origin of malignancy. In this connection, it will be remembered that a prominent surgeon who was violently opposed to the germ theory of cancer inoculated himself with cancerous material to prove his contention. He lived for several years afterward, but no one can say whether he was successful in his experiment or not. In certain cases cancer may progress very slowly and it may take years for symptoms to develop, nevertheless I believe few of us would feel like taking the cancers or implanting cancerous material into our own tissues to determine whether or not the disease could be produce din that way.

Cancer is the most serious problem with which we have to deal at present. Statistics show that ninety thousand people succumb to cancer every year in the United States alone, and that the disease is gradually increasing in every portion of the civilized world. Our methods of attacking the disease have not improved very much becase the mortality has not been materially reduced in recent years. We are able to make the diagnosis earlier than formerly and in many instances patients apply for treatment earlier, but the fact that the disease destroys such a large number of persons each year shows that our methods of handling it have not markedly improved. Cancer in the main occurs during senescence, but during the last ten or fifteen years it has not been unusual to find reports of cancer ocurring in young persons. The disease is not unknown in children under ten years of age, and when occurring in young individuals it usually assumes a rapidity of growth far beyond that noted in older persons. This may be explained by the relative immaturity of the tissues attacked by the disease.

There are certain factors which are strongly in favor of the theory of direct contagion as the cause of cancer. Take, for instance, a suppurative focus: if some of the pus is carried to another portion of the body it will become lodged there and make an infarct, say in the lung, in the brain, etc. In similar manner if a small portion of cancerous tissue gets into the blood it goes to another part of the body and produces there a similar growth. If there are no bacteria in the pus the infarct becomes sterile. If there are no cancer cells present in particles of tissue carried into the circulation the fragments are destroyed and no harm results, but if cancer cells are present within a short time there is secondary cancerous development at the site of lodgment.

B. F. Zimmerman: Any classification of tumors that simplifies the subject should be very welcome, provided it is based on a rational underlying principle. This it seems to me is true of Dr. Mallory's work. The simplicity is apparent to those of us who studied the subject years ago when there was no definite purpose in the classification. I shall never forget the remark made by one of our professors of pathology in this respect. He said: "When the good Lord created tumors he forgot that the d—d things had to be classified."

From a practical point of view the malignant tumors probably claim our most earnest study. Fascinating though the various theories may be as to the etiology of malignant growths, the problem has not yet been solved. Just what causes certain cells to give up a life of community existence and lead one of outlawry we do not know. Why certain cells abandon those functions which enable them to become organized into important physiological structure and be thereby helpful to the individual, and retain only the power of growth and reprduction, is still a mystery. That the problem will ultimately be solved by the combined efforts of biologist and physiologist seems probable.

In the diagnosis and treatment of malignant growths we should have perfect co-operation between the surgeon, pathologist and roentgenologist. A case for illustration. A boy had a large tumor over the great trochanter. The appearance, symptoms and roentgenological examination failed to determine whether it was malignant or tubercular. From the fact that the bony lesion was limited to the trochanter in a child where primary tubercular lesions of the bone are rare, inclined us to the belief that it was malignant. An incision was made and the tissue on section had the appearance of a degenerated malignant growth. Pathological examination by Dr. Graves showed a typical tubercular process. At second operation the diseased bone was curetted away, the wound packed with iodoform gauze, and the patient made a complete recovery.

John W. Moore: I agree with Dr. Graves that the new classification of tumors based upon the pathological characteristics is a great improvement over anything we have had in the past. I recall when at college it was customary to classify the sarcoma as round-cell, spindle-cell, squamous-cell, giant-cell, etc., and we had many other names for malignant neoplasms which were used without reference to the tissue in which they originated. For a number of years I worked with Dr. Graves in his laboratory at the Louisville City Hospital, and must say the little I know about tumors he taught me. My mind is now clear on most types of tumors.

There is one type of tumor that Mallory classifies that I have never been able to get clearly fixed in my mind, and that is lymphosarcoma or so-called Hodgkin's disease. Sometimes we see a patient with these enlarged glands in the axilla, in the neck and elsewhere. The patient has no elevation of temperature at any time yet death takes place within a short time. In another case of exactly the same type the patient will have a temperature of 104-5° F., he has severe pain, and death occurs promptly. The type of tumor, if it can be so-called, is the same in both instances.

Dr. Graves did not bring into his classification any of the so-called mixed tumors. Many tumors of the mixed type are sent to the laboratory with many names attached which mean the same thing. As Dr. Graves has said, the nomenclature of tumors has always been very confusing. The classification he has mentioned brings them into scientific types based upon their origin in embryonic cells, and the study of tumors will be greatly simplified by adopting this classification.

Adolph O. Pfingst: I was especially interested in Dr. Graves' remarks in the latter part of his paper on the etiology of tumors. Many authors have accepted Cohnheim5's theory of the dislodgment of embryonic cells to evplain the origin of tumors; but I believe it is now the consensus of opinion that not only embryonic cells are dislodged, but cells in later life are dislodged and assuming a rapid growth finally form neoplasms.

The cause of the growth of this dislodged tissue is a most interesting question. The theory has been advanced that these tissue cells which have been misplaced are ordinarily kept from growing by some inherent influence within the body. Whether this influence is of a physical or chemical nature, or whether it arises in some of the organs of internal secretion is entirely problematical. However, it seems reasonable to assume that there is some internal substance which is absorbed into the system and prevents these displaced tissue cells from taking on the power of growth so that the growth takes place whenever this influence is removed. We know that there are many factors which are believed to be contributory agencies, such as irritation, traumatism, etc., which must be considered in connection with the development of tumors.

The question of heredity has always been a mooted point in the causation of tumors. It has been shown that in about fourteen per cent of individuals with tumors, either malignant or otherwise, there is a family history of tumors of the same type, which can be traced backward for two or three generations. Other statistics, however, show that just as large a percentage of tumors occurred in families of individuals not affected with tumors. I believe that it is the consensus of opinion among pathologists today that heredity plays little or no part in the etilology of neoplasms.

As to the classification of tumors in general: It is difficult for any of us to discuss that phase of the subject unless we are actively interested in pathology and are working in this line as is Dr. Graves. It has always appeared to me that the simplest classification of tumors is one based on the histological structure of the growth, and if all tumors were benign that would be literally true, but unfortunately that does not bring us anywhere when we study the sarcomata and carcinomata. Therefore, I believe the classification described by Dr. Graves and originated by Mallory, known as the histogenetic classification, is the most appropriate one we have and should be generally used.

As an illustration of the fact that the profession is perhaps somewhat slow in accepting any new classification of tumors, I would mention a recent occurrence. At the last meeting of the American Ophthalmological Society I reported two cases of pigmented sarcoma of the chroid. At the suggestion of Dr. Graves I adopted the nomenclature which he reviewed tonight and reported them as "melanomata." The editor of one of the leading ophthalmic journals, to whom the report was given for publication, suggested the substitution of the old term "melanosarcoma." He was under the impression that the term "melanoma," which oculists employ in describing pigmented areas in the iris would be misleading to the majority of oculists

Irvin Abell: Dr. Graves' paper is a most timely one and is certainly instructive. As he has said, much confusion has arisen in the past from the indiscriminate naming of tumors which as a rule has been due to inexact knowledge of the type of the neoplastic cells. In the light of our present knowledge the classification which he has advanced is unquestionably the simplest and most logical one. Taking the cell as the unit of life it is but logical that the type of cell which gives origin to the tumor or which causes further growth finally becoming abnormal and giving rise to tumor formation, should be the unit on which the nomenclature of tumors is based. There is possibly no one subject with which the average doctor comes into contact about which he has so little exact knowledge as the question of tumors, and in all probability the explanation of that fact lies in the confusion which has arisen from the inaccuate nomenclature.

This subject is particularly important at the present time, since under our hospital standardization we have a rule which requires that all tissue removed in the operating room be subjected to microscopic examination. This will serve in a measure as a post-graduate course to the majority of us, attracting our attention to the correct nature of all tumors, and when the nomenclature has become thoroughly understood the type of the tumor itself is at once apparent. When we know the exact type of the tumor, we shall understand what we may reasonably expect in its future development, and consequently know what measures to adopt in the treatment of that individual case.

It is a great pity that our text books and our knowledge of tumors cannot be condensed; we might well forget much of what we have learned of the older names mentioned by Dr. Graves and adopt the classification he has suggested which is very much simpler.

I was interested in what the essayist had to say in regard to the possible causation of tumors. The stimulus which causes the normal cell to repair or reproduce itself is not understood, that is, as cells are destroyed in the wear and tear or physiological routine of life naturally they must be repaired or reproduced, but the manner in which this occurs is not known. Until that is understood it will be difficult for us to know just what originates the stimulus which causes a cell or a group of cells to become lawless in their development and produce encapsulated or non-encapsulated growths invading and destroying according to the process which we term malignant.

The only type of tumor which we understand definitely at present, and which is one of the strongest arguments in favor of Conheim's hypothesis, is the growth which under the old classification is known as dermoid tumor. In this type during fetal development there occurs inclusion of epithelial or dermoid tissue in abnormal situations giving rise to a tumor in later life where we would hardly expect to find any dermal tissue. With that one exception I do not believe we are any nearer solution of the causation of tumors than we were many years ago. It is certain that chronic irritation has a great deal to do with the development of malignant neoplasms. I do not know that in my entire experience I have ever been able to determine that any simple tumor which has come under my observation has been produced by chronic irritation. On the other hand, there have been many cases of malignant tumors which we had every reason to believe could be justly ascribed to chronic irritation. There are certain conditions under which malignancy so frequently develops that we have been justified in designating these conditions as "pre-cancerous." Of course, literarly no one lesion can be said to be pre-cancerous in the sense that it is invariably followed by malignancy, but there are certain conditions in which irritation occurring in the course of the lesion is followed frequently by cancer as to be termed pre-cancerous. Examples of that kind are so common that they are mentioned in practically all of our text books. This is particularly true of cancer of the mouth and tongue. Statistics show that in this country alone during 1920, roughly speaking, there were about three thousand one hundred deaths from cancer of the mouth and tongue. The explanation offered is that the mouth and tongue are subjected to chronic irritation from the excessive use of tobacco, alcohol and the presence of late syphilitic lesions. In India where chewing the betelnut is common with both sexes there are more cancers of the mouth than in any other nation. The disease is about equally divided between the sexes and is ascribed to chronic irritation from the betelnut. In the natives of Kashmir, who wear charcoal burners on their abdomens to protect them from the rigors of the climate, more malignant tumors of the abdominal wall are found than in practically any other nation of which we have any knowledge. The Chinese are particulary prone to cancer of the posterior wall of the pharynx. This is explained by the customs of eating inordinately hot rice, chop sticks being used and the rice deposited in the pharynx practically without touching the tongue. More cancers of the pharynx are found in the Chinese than in any other race. These illustrations could be multiplited almost indefinitely. Surely all of us have seen simple tumors of the skin, whether papilloma or fibroma, which later became malignant as a result of chronic irritation. I remember reading a report by Bloodgood covering a study of four hundred and eighty cases of cancer of the skin, and not in a single one of these cases was there absence of the history of some pre-existing lesion. Hundreds of similar cases have been reported where simple tumor subjected to chronic irritation later became malignant.

G. A. Hendon: The subject of tumors is one that presents a field for the indulgence of fancy and unlimited scope for discussion because of the many mysteries that pervade it. It is quite attractive because it permits of such wide ranges of speculation and its study leads back to the origin of tissue.

It was my task for several years to lecture to medical students on this subject and I found it most difficult because of the unsatisfactory classifications. No two authors classifying tumors in the same way I found that simplicity was gained by basing the classification upon histogenesis as the essayist has done. For example, those derived from epiblastic tissue we call epitheliomata, those from the mesoblast we called connective tissue tumors, those from the hypablast we called endotheliomata.

It is interesting to note tumors are malignant or benign in proportion to the extent at which they violate natural laws of control. The benign tumors grow in strict accordance with all biologic law except function. They have no function, therefore, are not amenable to the rules concerning function. Nature has decreed: First, that structure shall develop in size, shape, density and situation according to the purpose it is intended to fulfill. Second, that all embryonic cells shall mature to the type of tissue from which they originated. Third, that no structure shall outgrow eihter in rate or size its supply of nutrition.

Benign tumors grow, it will be observed, in strict obedience to decrees No. 2 and No. 3, but violate decree No. 1.

Malignant tumors are utterly lawless and exist in most flagrant violation of the laws of function, origin and nutrition. They exist without functions, their cells grow without any regard to type and never reach maturity. They proliferate without regard to supply of nutrition and die and slough as they exceed their vascular connections.

Regarding the etiology there is nothing definite known, but there is something so charming about the Cohnheim theory that I should feel grieved to see it upset. It is so easy to imagine that if an embryoneal mucous cell is transported into cutaneous structure it may be dormant until aroused by the heart and mechanical irritation of a pipe stem and become absolutely wild and lawless by reason of its unnatural environment.

The evidence of irritation acting as factors of malignancy multiply in every direction. Not only do we see it on the surface of the body but in the alimentary canal. A favorite site for a carcinoma is at the pylorus where acid juices overflow an alkaline secreting surface Also at the ileo-cecal junction where the contents are forced to pass through a narrow aperture, and in the sigmoid where the inspissated fecal mass lies longest in contact with the mucous membrane of the bowel.

Stuart Graves (closing): I wish to thank the gentlemen for their liberal discussion. I will try to answer some of the questions that have been raised.

We have only to go back to simple embryology and recall that all tissues of the body arise from three germinal layers to appreciate the formation of neoplasms; and it all depends on how far back you want to go. For example, we know that so-called epithelium may arise from either of the three primary embryonic cells. We also know that nerve tissue arises from the outer germinal layer. On the other hand, we know that fully developed nerve cells differentiate entirely differently from ordinary epithelium.

Dr. Zimmerman spoke of the difficulty sometime encountered in differentiating between benign and malignant tumors. One may readily appreciate that between the two extremes there is a middle point where it becomes exceedingly difficult for either the clinician or the pathologist to tell whether a tumor is malignant or not. This is illustrated by a case mentioned here by Dr. Dabney a few months ago in which the diagnosis of tumor arising from the antrum was in considerable doubt for many months. From the frozen section of the tumor I made a diagnosis of malignancy. The late Dr. H. H. Grant and several others were skeptical in regard to the diagnosis because the patient improved so remarkably, and I believe Dr. Dabney reserved his opinion for a considerable length of time as between the microscopic appearance and the clinical evidence. And I began to wonder if my diagnosis was correct, although I felt I had not made a mistake. The patient eventually died from generalized cancer although, under Roentgen-ray therapy, the tumor had become smaller for a time and there had been clinical improvement temporarily.

I mention this case to show that there are times when it is almost impossible to tell whether a certain growth is malignant or benign, and I would like to emphasize the strongest point Dr. Zimmerman made, viz., that the clinician, the surgeon and the pathologist, not only in tissue work, but in all laboratory procedures, should cooperate with each other. The pathologist is entitled to full clinical knowledge of the case in hand, just the same as the clinician and the surgeon, and between them in doubtful cases they can probably arrive at a safe conclusion.

I am glad to know my diagnosis was correct in the case mentioned by Dr. Zimmerman of a lesion involving the hip joint. I recall it very well. It was one in which differentiation was necessary between tuberculosis and bone tumor. The clinical evidence was considered in favor of the latter, but the microscopical picture was that of tuberculosis, and I am glad to know it was correct.

I greatly appreciate what Dr. Moore has said about his work in the laboratory with me on tumors. However, I wish to say that any information I have on that subject is second-handed, and I would like to attribute what knowledge I have to my told teacher, Dr. Mallory, because I think he is the greatest living authority on the microscopic appearance of tumors.

As to lymphatic tumors, I am glad Dr. Moore mentioned the two types of cases. Why malignant hyperplasia of lymphoid tissue will sometimes remain localized, or why the disease extends by way of the lymph stream from one chain of nodes to another and eventually causes death of the individual, or why it will take an entirely different course in another case and apparently metastasize in the blood stream and show no marked local hyperplasia, I have not the least idea in the world, any more than I have why a tumor grows. It remains a fact, however, that the essential tumor cell is the same. In lymphatic leukemia it metastasizes in the blood stream.. It may remain localized, producing the so-called lymphosarcoma. Whether it be a small or a large cell makes no difference. The essential cell is the same and it comes from the same source. Why some of these patients have fever and others do not is another question I would not attempt to answer.

As to the question of mixed tumors, that is a subject which is so large that I cannot undertake to discuss it fully. The majority of such tumors are so-called dermoids. I think if Cohnheim's theory has any application anywhere it is in connection with the development of such tumors.

In answer to Dr. Pfingst, I have never heard of melanoblastoma as a term to represent a malignant tumor of the eye arising from the pigmented coat of the choroid, being questioned before. It is a term which may be found in any standard text book on pathology.

Speaking briefly of a few of the theories as to the causation of cancer, as I have already stated, Cohnheim's theory may apply to those growths which are attributable to detached embryonic cells, but to say that a certain group of cells in the course of embryonic development of the human being can become displaced or disassociated very early in the growth of the organism and lie dormant for perhaps fifty or sixty years and then start to grow and become malignant enoplasms, it seems to me, is not quite reasonable. The modern view, as stated in the paper, is that the unit of all living organisms is the cell, and we know the life processes of metabolism go on within each individual cell in the complex unit. It seems to me that it is much more reasonable to assume that at some period in life the cells which have until then existed as normal cells can, under some influence which may change their inherent physio-chemical conditions or the surrounding physio-chemical conditions, be stimulated to grow beyond physiological limits. In other words, it seems that there is an upset of the metabolic conditions in a certain group of cells in a certain portion of the body rather than an abnormality in a certain portion of the body which has exisited without any influence from birth or from pre-natal time.

The work of Bullock and Curtis was mentioned in the paper. Normal rats were infected with a cysticercus and, as a result of the influence of this parasite in some rats, the adjoining tissue cells were stimulated to neoplastic overgrowth. Regardless of these experiments, however, I believe practically all the leading authorities agree that the parasitic theory of the origin of cancer is not tenable. The consensus of opinion seems to be that the germ theory has nothing whatever to do with the formation of neoplasms. While it is true certain organisms have been found in neoplastic tissues, this does not prove anything. The work of Bullock and others in the transplantation of tumors, it seems to me, is another argument in favor of the theory that tumor cells are not necessarily misplaced according to Cohnheim's theory, but that they are cells which have developed in the regular way and later in life under some unknown influence have changed into neoplastic growth.

Some one spoke about the interpretation of pathologic reports. Generally in using this new terminology, which I try to do consistently because I think it is a matter of education, I put in brackets the older terms so there can be no misunderstanding, but sometimes I forget to do this, especially in describing the more common tumors. I wish to say, however, that the size of the cell has nothing whatever to do with the degree of malignancy so far as any fixed rule is concerned. In one case of small round cell sarcoma may develop slowly, and in another it may be exceedingly malignant and grow rapidly. Any type of sarcoma which grows slowly in the beginning may later develop into a rapidly growing neoplasm. The less differentiated the tumor cell is the more likely it is to be rapidly growing and therefore the more likely it is to be malignant.

I purposely omitted any reference in my paper to the teratomata, Cohnheim's theory of the origin of cancer, etc., because I wanted to bring home one clean-cut idea, i. e., it makes no difference whether tumors are designated as A, B, C or D, or as 1, 2, 3, 4, or anything else, so long as we know just what the growth is. It makes no difference whether you call a smooth muscle tumor a uterine fibroid, a leiomyoma, or whether you call it "Kalamazoo," if you know it is a smooth muscle tumor. It may be a spindle cell tumor, but you know it is an entirely different kind of tumor from a spindle cell tumor arising from the sheath of a tendon, which has an entirely different prognosis and must be handled in an entirely different way surgically. Both are spindle cell tumors and both may be benign or malignant. A simple leiomyoma (fibroid) is practically always benign, whereas a spindle cell tumor arising from the sheath of a tendon frequently becomes malignant. Therefore, as I have said, it makes no difference whether you call it by name, letter or number, the essential point is to understand the nature of the tumor cell.

There are only fourteen or fifteen distinct types of tumor cells. Therefore, if you learn what these tumor cells are, you are by that much better prepared to handle them in a logical and intelligent way from the standpoint of the welfare of the patient and the prognosis.

Dr. Abell spoke of some conditions that are treated under the heading of fetal displacements or local tissue abnormalities. It is true that in the routine examination of tissues we frequently find displacement of certain cells, and it is also true that tumors sometimes arise from these misplaced cells. But to say that all tumors arise according to the hypothesis of Cohnheim would be equal to admitting that all diseases should be treated by osteopathy. In other words, mechanical therapy has a place, it is logical and of great benefit in certain conditions, but, because mechanical therapy has a place in the general treatment of disease, it would be just as logical to say every disease should be treated in this way, as to say that, because some tumors arise from fatal displacements, all tumors must arise according to Cohnheim's theory.

Emetin Treatment of Bilharziasis.—Bonnet reports the cure of a case of bilharziasis under nine intravenous injections of emetin at intervals of two or three days, the doses increasing from 2 to 10 cg., and then six injections of 10 cg. each on alternate days. After suspension for six days, another series of 10 cg. was given at three day intervals. The drug was discontinued the fifty-third day. Aside from the characteristic asthenia under this treatment and tendency to vertigo toward the last, there were no appreciable by-effects. No living parasite or living ova could be found after the fifteenth injection.

THE VALUE OF THE PERIODICAL PHYSICAL EXAMINATION.*

By W. N. LIPSCOMB, Lexington.

More and more we are beginning to recognize the broad truth stated by the great Gladstone that "health and life are wealth." More and more we are beginning to realize that whatever material treasures we may be able to amass in our home, our deposit in the bank month by month, our business progress, that these are infinitesimal compared to the bank account in which physical, mental, and nervous energy are deposited against disintegration and even the destruction of the every day wear and tear of life.

Egotistical as we naturally are as a nation we thought until 1917 that the physical perfection of our young men was something to be marveled at. As a result of the first two and one-half million examinations when we most needed our vital and physical resources, we were brought face to face with the staggering fact that 730,000 were eliminated by the physical examination. When it was found that 29.1% of our young men were disqualified at the age when the tide of life is highest, we began then to realize that we were in a sense a sick nation. (Of this number, 20% were rejected on account of mechanical defects, 15.7% on account of circulation defects, 15% by reason of tuberculosis and venereal diseases, 19% due to defects of the skin and teeth, 9% to nervous and mental causes, while developmental defects were responsible for 6%, all other causes making the remaining 4%.) This opened our eyes to our unpreparedness, our shameful and inexcusable inaptitude and inefficiency. There was no denying the penalty for neglect of the physical self. Great Britain went through more or less the same experience. That nation has been made great the same as ours, by pure brain and brawn, but when the physical examinations were made while the spirit of the nation was still there, the flesh was growing weak. Only 36% of her men were placed in Class 1 as fit to fight, while 11% were hopeless as a military asset. We would have been still more surprised, even shocked, if the entire male population between the ages of twenty-one and forty-five had been subjected to the same examination. The Life Extension Institute has found 50% of industrial workers in need of important medical attention. It is difficult to estimate the cost of this to industry, to our economic system, and to the individual worker.

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*Read before the Kentucky Valley Medical Association.

As a result of the examination the Committee of Ministry of National Services of Great Britain has given out the following conclusion which every man must consider in the light of his own work in the world. "It (war) has forced us to face man power problems with a greater intensity; it has compelled us to take stock of the health and physique of our manhood; this stock-taking has brought us face to face with ugly facts and—one hopes—awakened us from the half-hearted complacency with which in the past we have treated our most important asset—the health of the nation."

Dr. Eugene Lyman Fisk, Director of the Life Extension Institute, writing in "The Nation's Health," has asked this question, "Is there a national need for periodical physical over-hauling of the bodies and lives of our citizens? The underlying common sense of the principle that it pays to inspect the human body periodically and apply scientific knowledge in correcting defects or training the body up to a better physical state, appeals strongly to the average intelligent person, but the same type of person usually fails to appreciate the full scope and possibilities of such a measure.

Certain principles of logic and common sense which applied to every other branch of human activity are almost ludicrously ignored in considering the human body and its adjustments to its environment. That this complex aggregation of cells, offering splendid invitations to millions of enemies that work unseen, should be permitted to remain uninvestigated, year after year, until these enemies have, at least temporarily, overpowered resistance and given rise to pain or disability, is perhaps the most outstanding and incomprehensible piece of stupidity of which the human race has been guilty in a long range of tragic and costly errors."

Doctor Fiske in the same article asks also the following group of questions: "Is it not a fact that such physical examinations as have thus far been made of supposedly healthy people disclosed a very high percentage of physical defects? Is it not a fact that men whose living habits are likewise considered in relation to their physical state have a similar high percentage of errors in personal hygiene? Is not not a fact that the correction of these physical defects and the education of these individuals as to more rational hygiene will influence, not only their longevity, but their living capacity and achievement? Is not true that the nation which proves so apathetic and unintelligent as not to utilize such opportunities will fall behind others that do?"

The average person's attitude toward the body is medieaval, even ancient. The Romans glorified the body and sent highly trained athletes into the arena to kill or be killed; this so stunned the early Christians that they began to abase the body to exalt the soul, forgetting the one was and is the temple of the other, and from that revulsion of gladiatorial progress we inherit the basic indifference we have to the house in which we live until foundations rot and timbers snap. But a new religion is being developed out of the old, a religion that still considers the soul as paramount, but considers the body as well, a religion of clean living, of strong bodies, of sane attitudes toward mental and physical hygiene. That new development was born of economic reasons, the far-seeing plan of life insurance companies that they might exist and prosper. For instance, the Metropolitan Life Insurance Company, by the way, a tremendous factor in national health development, issues this statement to policyholders: "It is a well-known fact that a large amount of sickness is preventable or could be mitigated by proper preventive measures; that a large percentage of deaths in this country is premature. Manufacturers have found it advantageous to examine machinery periodically to detect beginning trouble and to correct same, instead of waiting for an explosion or a breakdown. Why should not the same principle be applied to mankind? A periodic medical examination of the human body and the applying of corrective measures for any impairments found will tend to lessen sickness and to reduce the death rate. It also may add to the health, happiness and efficiency of those in average health."

The industrial world then began to realize that man power was greater than machine power and its conservation more profitable than that of buildings and material equipment. Next, health departments began the crusade, then educational institutions instituted a physiology bigger and broader than the practically single high school idea of former days that a drop of nicotine can kill a frog. The press then fell in line. In a sense the leadership has been taken away from the medical profession, the men of all men who see and know the daily evidence of disease and progressive signs of decay; that leadership should and must be brought back where it belongs. An awakened public consciousness toward the preservation of personal health must be met by the proper men to guide it best—the practicing physician, the teacher of hygiene, and the health officer, also physicians. This consciousness must not fall prey to isms and schisms of half-baked moralists, of professional charlatans, of quack advertisers. The individual need not necessarily become a patient, but he must be taught to seek advice where it is honest and intelligent, well-trained and as sure as present scientific thought and methods can make it. The problem of community health is nothing but a collectivism of individual health.

We are paying a great deal of attention to our children and are proud of their achievement. All honor for that. The adult applands medical inspection of school children, congratulates the health departments on reducing mortality from contagious disease, cheers the press and deservedly so, for its attitude of community protection and then, "after the tumult and shouting does, does what?" Forgets himself, is annoyed at times by a slowing down of vital forces, and goes on. The problems of the future in medicine are not those of smallpox, typhoid and whooping cough—the real essence of future longevity of life lies in the study of the chronic degenerative diseases—which are on the increase, diabetes, nephritis, cardiac disorders, high blood pressure, high tension living with consequent nervous exhaustion. The facing of this problem lies in early discovery of each and all with the periodic physical examination as the Book of Gibraltar of human hopes for more years and added usefulness. The chronic diseases are signs of racial decay; they can be materially checked by the new hygiene, the discriminating use of drugs, the constant surveillance of a conscientious physician. This is no prophecy of a physical or materialistic millenium. It is merely a revision from the plan of doing as one damn pleases to the basic law of self-preservation.

Liberty is taken of quoting Dr. J. H. Kellogg, Director of Battle Creek Sanitoriums, articles appearing in Good Health Magazine. "That there is something radically wrong with the habits of the American people may be fairly inferred from the rapid increase of chronic maladies in recent times.

It is thus evident that the lowered deathrate is solely the result of the control of acute disease.

If the death-rate of other chronic maladies had been lowered to the same extent that it has in tuberculosis, the general death-rate would have been 11.5 instead of 13.5, which would have resulted in the saving of more than 200,000 lives annually."

Let us proceed to the physical examination itself. The patient's history should be complete and by this is not necessarily meant merely complaint of certain things. The fact of the matter is that the tendency generally is to do a lung examination alone, or a heart examination, looking for a definite lesion which we have suspected from a history, rather than a complete examination of the individual as a whole. This is bigger and broader. It means taking into account the personality of the individual, the constitutional traits, the ability to cope with his environment physically and mentally. If in industry, how does his general make-up fit in with the composite scheme of the particular job or industry in which he is; if a professional man, take into account those things, mental or physical, which may make or mar. This examination should be psychiatric in type as far as the physician can extend his interest and ability. Factors such as periods of depression, restlessness, ratio of fatigue to work output should be considered. This is especially true in industrial examinations. From the physical side, let us begin with the eyes, ears, nose and throat, as here will be found perhaps fifty per cent of the causes of trouble with the human organism. The eye examination must go further than simply putting a patient twenty feet away from an eye chart and requiring him to read certain letters. A good many cases of reflex eye strain, of basic refraction trouble, of lack of concentration, in short, cases that really need glasses and physical upbuilding are blissfully passed up in haste to complete a given examination. The best plan, of course, is to refer the individual to an eye, ear, nose and throat specialist. Then should follow a complete examination, preferably with the patient completely stripped. In examining patients on our old idea that haste and efficiency are compatible, we frequently neglect small facts which mean a great deal to the individual. For instance, varicocele with its neurosis following, also the possibility of hookworm infection. The average physician in doing examinations seems to hold the feet in contempt, forgetting the effect of defects of same on a man's earning capacity, enjoyment of life, and physical fitness. The Orthopedic specialist sees a remarkably small percentage of defects largely because the physician is simply ignoring them.

Laboratory examinations should be done when indicated, or in doubt, but laboratory investigation by the very brilliancy of its results in obscure cases and the cases in which uncertain symptoms are cleared up thereby has served to divert too much attention from the careful clinical study of the patient which is considered the chief method by which a correct diagnosis can be made. The same is true of the x-ray. These two assets of the physician are not to be decried, in fact, they are extremely valuable, but the x-ray man and laboratory man are making us clinicially lazy.

Some of the details of the examination other than the physical side of it might be enumerated here:

1. In history of a chronic throat trouble a culture should be made of the throat. An autogenous vaccine can be made when necessary in preference to a stock vaccine.

2. In suggestive cases blood counts should be made, not merely a white and red, but a differential including a hemoglobin.

3. Urine examination should be made of every case. The microscopic side of this may be attended to when the physician feels it necessary. The phenosulphophthalein and sugar estimated when indicated.

4. Blood pressures are largely optional under thirty except in certain cases and athletes, but should be made in all cases above that age, especially in cardio-vascular-renal disorders and the obese.

5. A Wassermann examination should be included where suggested, remembering that a single negative Wassermann examination of a suspect by no means clears up a diagnosis.

6. A basic metabolism test in certain disorders is essential, such as hyperthyroidism.

7. An x-ray of the teeth or chest, when indicated, not necessarily a routine by any means.

8. Perhaps we physicians in the South are making a mistake in not requiring more fecal examinations as a routine. We are not even trying to make ourselves expert enough in diagnosing uncinariasis clinically and hence are jumping to incorrect conclusions, such as tuberculosis, neurosis, anemia and similar maladies. If this is an incorrect statement I trust that the gentlemen who discuss this paper will speedily correct it.

This may seem a rather large plan to map out in a routine examination of a man or woman apparently in good health, merely coming in for a checking up of their physical and mental selves, but we must remember our complacency before the war in assuming that practically everybody was physically perfect unless a bed patient, and remember further that the patient who comes for examination really wants to know or is required to know if there is any definite trouble.

The liberty of quoting a paragraph from Doctor Thayer's excellent article on "Dispensary Work," Journal A. M. A., May 13, 1922, is hereby taken: "Properly to prevent and to protect, the physician must have human sympathy and skill in dealing with his fellowman. He must be familiar with the actions and reactions—not so particularly of the helpless invalid whom he can direct and control—but of the self-sufficient and independent man rushing along in his thoughtless career, who stops to ask for relief for a symptom, but is impatient of warnings and knows not that he can fall. It is a fascinating and a difficult game that the physician must play. In the hospital the measures that need to be carried out he can, as it were, command; but without he can accomplish the necessary measures only by his own authority and through his powers of persuasion. On these powers depend largely his success as the protector, adviser and healer of his patients. But the mental attitude of the healthy, busily occupied man, suffering from a minor complaint, is far different from that of the invalid in the hospital ward. The greatest privilege, the most important and, at the same time, the most difficult duties of the physician—public and private—are these duties of prevention and protection; proper attention to lesser ailments, education of one's patients in matters of hygiene, proper care of convalescence. But the success of a physician depends largely upon his ability to impress the ambulant patient or the healthy man of the necessity for those hygienic and preventive measures on which his health and efficiency may depend."

As to the time intervals of examination of the individual, this depends on the nature of the case, the type of affection found, if any, the degree of mutual interest of the physician and the patient, and the judgment of the physician. We know that conditions such as diabetes, nephritis, tuberculosis, cardio-vascular disorders, and that vague, peculiar thing we guess as neurasthenia (often forgetting or refusing to regard it as a symptom) require early and more or less frequent examinations. The point is, that while it is the fault more of the layman than the physician, we are not given the opportunity of making early diagnosis—of ferreting out those things which cost so much in lives and dollars, in efficiency and happiness. . Another item: the objection may be raised that we are commercializing a new consciousness—we are not —no attempt is made to force or legislate to this end; neither will the honest physician attempt to produce hypochrondria as a means to the end of periodic examinations nor the intelligent individual develop it; witness the increasing number of adults who annually or semi-annually visit the dentist for a routine inspection of teeth, likewise sending their children for the same. Education will be largely done through three sources—first, the physician stating, "Come back at such and such a time;" second, health departments will continue their propaganda of physical conservation broader than merely the control of epidemic disease; third, and by no means least, the press—the newspapers and periodicals will from now on call more and more attention to this fundamental need. While we are prolonging life on the average we are losing too much from tuberculosis in industry, we are losing too many men who have led high-tension lives, men dying earlier than they should; the so-called chronic constitutional diseases are on the increase, and the money value to the nation of the worker, the professional man, the teacher, the manager, and executive of business and industry, is being raised steadily and attention brought more directly to it. However, it, the periodical physical examination, is the handwriting on the wall, not of national degeneration or racial decay, but preventive medicine in its highest function—early advice leading to prevention of disease, early diagnosis making cure more certain, and early treatment to prolong our days in their infinite and varied usefulness against a more complex existence and a steadily falling birth rate among the higher types. In submitting this idea the spirit has been to add to human welfare with all the arts of science by physicians, big of heart as well as mind, in whose hands rests a future older than the oldest of the sons of men. I thank you.

A CASE OF SUPPURATIVE ETHMOIDITIS COMPLICATED BY ORBITAL CELLULITIS AND ACUTE SUPPERATIVE DACRYOCYSTITIS.*

By Walter Dean, Louisville.

On the night of February 14th, this year, I was called to see Mrs. B., aged 62, through the courtesy of Dr. Elmore.

She gave a history of "nasal catarrh" with neuralgic pain in the head since girlhood. For about seven years the right naso-lacrymal duct had been obstructed and the eye swam in tears. Patient stated that she had had a purulent nasal discharge since December. Discharge stopped two days ago after exposure and the eye had suddenly swelled shut. Since then the swelling had increased progressively. Pain was intense, temperature 102°.

I found the right face swollen from nose to temple. The lids were distended to the greatest extent. The conjunctiva of the inferior culdesac prolapsed and necrotic. The lids could hardly be separated, so great was the swelling and pain. The eye was found to protrude, approximately a quarter of an inch. Only the upper portion of the cornea could be exposed. It was hazy. It was impossible to determine the visual acuity.

The right nose was blocked by a polypoid middle turbinal, shrinking the nose and suction brought down no pus. A diagnosis of orbital cellulitis and phlegomonous dacryocystitis complicating suppurative ethmoiditis was made.

The next day she was removed to an infirmary. While waiting to get into the operating room Dr. Elmore and I incised the lower lid and evacuated several drams of pus. Later, under general narcosis, an incision through the inner fourth of the eyebrow was made, descending toward the inner angle of the eye and passing down about two centimeters below the lacrymal fossa in the usual manner. When the periosteum was retracted, the lacrymal sac was found to be putrescent, the lacrymal and adjacent plate of the ethmoid necrotic. This tissue was curetted away. The anterior ethmoidal cells were found to be polypoid and were removed. To relieve intraorbital pressure a large part of the lamina papyraceal was removed with the cells. Going below, a fistula, through the soft parts, was found to extend from the region of the lacrymal bone to the point just below the temple. Here a counter opening was made. A quantity of pus was evacuated. A drain was inserted here and another into the nose. Owing to the septic condition of the field, the eye was not examined. On the second day the lids were opened. The exophthalmus was was slightly decreased. The lower eighty per cent of the cornea appeared covered by a thin exudate which afterward proved to be an ulcer. The part above was crystal clear and there was a straight horizontal line of demarcation between the affected and the unaffected parts. The ulcer never extended above this line nor did it extend deeply into the proper substance of the cornea. The intense pressure of the lid for four days evidently destroyed the epithelium.

A great deal of pus came from the operative wound for four or five days and then decreased to nothing the twelfth day. The exophthalmus disappeared about the fourth day. The cornea has been healed now for two or three weeks, but I do not anticipate that a great deal of vision will return, as corneal opacities do not thin much at 62 years. The other day I sent her to a roentgenologist, and the right antrum was the only sinus found to be affected. Puncture and lavage confirmed the x-ray diagnosis.

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*Read before the Jefferson County Medical Society.

Arnold Knapp says: "Extension of antral disease into the orbit is less common and rarely occurs except through the intermediation of ethmoidal cells, but both with antral and ethmoidal cells and the tear sac really is. Sinusitis may occur and not infrequently the mistake is made of treating as dacryocystitis a manifestation of sinusitis."

DeSchweinitiz says: "In a search for a primary cause of suppurative dacryocystitis, infection of the ethmoid cells and the antrum of Highmore are of great importance and these regions deserve accurate investigation."

Skillern says: "Inflammation of the lacrymal duct is not rarely associated with purulent conditions of the anterior ethmoidal cells, due largely to the arrangement of circulation. The lacrymal sac is surrounded by a network of arteries, a number of which pierce the lacrymal bone, penetrating into the infundibular cells and those of the uncinate process. The returning veins can carry infection from the cells to the lacrymal sac, thus setting up inflammation."

DISCUSSION:

Gaylord C. Hall: Dr. Dean's report is certainly extremely interesting. I think that point that should be stressed in this connection is, not that these cases occur occasionally, but the fact that they do occur more frequently. The intimate anatomical relationship between the tear sac and the nose can be readily seen by anybody who will take the trouble to make an examination. Such an examination will demonstrate how frail the bone separating the anterior ethmoidal cells and the tear sac really is.. Therefore, it is not surprising that these cases occur occasionally, but it is surprising that they do not occur more frequently.

Another feature about the report worthy of mention is: apparently the patient had the condition described for a number of years without causing her any particular disturbance. The history shows that she had a nasal discharge, yet there had never been any fulminating suppurative symptoms such as usually occur in these cases, terminating in extensive destruction of the nose and lachrymal sac and extending outward over the temple.

I believe it is well to bear in mind, when patients say they have "catarrh" or a discharge from the nose which has existed for some time, that such things are not as innocent as they sometimes appear, and such patients should be seen by the physician to determine the reason for the discharge. All of us who do work of this kind know that such conditions long continued mean as a rule something which is thoroughly amenable to properly applied surgical treatment; they can be cured and the patient thus saved discomfort and suffering and to some extent danger of losing function or vision that will take place if allowed to progress to this terminal stage.

I think we are indebted to Dr. Dean for bringing this case to our attention.

MORTALITY AND END RESULTS IN SURGERY FROM PERSONAL EXPERIENCE.

By J. Hadley Caldwell, Newport.

There are so many phases to this subject that one may write a volume—yes, even a number of volumes—and not tell all there is to be known of such a vast subject. Therefore, the writer will not attempt to discuss in detail all phases of the subject, but will endeavor to give some general ideas gleaned from the literature and from personal experience.

If we want to know the reason for a certain mortality rate in a given disease, we must first study and try to learn that which is normal; that is, what chemical changes or reactions are taking place within the cell during the healthy physiological activity, or better, the normal metabolism. If we know this, then, we are ready to study the abnormal metabolism—its causes and its prevention or cure.

It is well known that during life in the human, and, in fact, in all animal life, there is oxidation going on; that is, the cell takes up oxygen and discharges carbon dioxide. When oxidation ceases there is death; that is, a state when the chemical reactions, that normally are going on in the living cell, cease, and degeneration begins.

As more than 90% of the body is water, it goes without saying, we need more water than any other substance to keep up our metabolic equilibrium during life; consequently, it behooves us to direct the treatment of our patient in such a manner that all the tissues of the body are abundantly supplied with water if circumstances permit.

If we accept Crile's idea that the nerve cell is practically a very minute electric battery, where electrical changes are going on at all times during life, and that the nucleus is acid in reaction, the cell body is alkalin, and that there is an interchange of the two substances through the nuclear membrane, creating and discharging energy, there is necessarily oxidation going on, and waste material or carbon dioxide given off; thus, the process of dehydration and acidosis continues, and the cell craves water and salt. Therefore, physiological sodium chloride solution is our sheet anchor in many acute diseases, particularly, before and after most surgical operations.

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*Read before the Campbell-Kenton County Medical Society.

If the above mentioned changes are going on within one brain cell, then it is obvious that the same changes are taking place in all the brain cells; so the brain as a whole may be considered as one large electric battery made up of millions of minute electric cells that are generating and discharging energy or electricity at all times during life, with the discharge exceeding the generative action during consciousness. The discharge is accelerated during mental or physical activity. The generative action exceeds the discharge during sleep; thus, the battery is recharging during sleep.

There are definite degenerative changes that take place in the individual brain cell, during any acute infective process—starvation, fright, anxeity, prolonged general anaesthesia, pain, fatigue or anything that increases metabolism.

One of the most frequent causes of increased metabolism is hyperthyroidism; that is, there is an increased secretion from the thyroid gland, the active principle of which is thyroxin (an iodine compound).

In the beginning of all degenerative changes in the individual cell there is an accidosis developed. This does not mean that the cell body is actually acid in reaction, but that there is a reduced alkalinity, the same is true of all the cells of the body, or the body as a whole. This condition exists in varying degrees according to the severity of the disease, nervous shock, or the virulence of the infection in a given case.

The principal organs that are affected by this change first, are the vital organs—as the brain, liver, kidneys and adrenal glands. Therefore, during disease, and, particularly, the diseases that require major surgical operations, where there is the added nervous shock, surgical trauma and the anaesthetic to contend with; it behooves the surgeon to prevent the accidosis, if possible, by advising the patient to take some alkali and large quantities of water before operation, if there are no counter-indications present; and after the operation, if accidosis is combatted with the routine use of large quantities of physiological saline solution.

The patient must also have, as near as possible, absolute rest, mental and physical. This is best accomplished by allowing no visitors, and the use of morphine, or opium in some other form, or in combination with chloral and bromide. Pituitrin is another remedy that has been added to our armamentarium that is of very great importance. Its judicial use, in some abdominal cases, often turns the tide in the right direction and saves the patient's life.

With the brief statement of the few cardinal principles mentioned above, the writer will attempt to give a few statistics and end results—not taken from the literature, from text books, or from any of the large American or European clinics—but compiled from 450 consecutive cases of major surgical operations performed by him personally, in seven different hospitals, and also numerous emergency cases in the rural districts; that either refused hospital service, or were too ill to be moved from their inaccesible homes to a hospital.

These statistics are of value to the writer, as they represent a checking up of his own individual work, pointing out his mistakes and failures, as well as his successes, so he can strive to do better. I take it that they should be of some value also to the general practitioner in this community, as I believe, they are somewhere near the average—taking all cases as they come—so he can judge about what result may be expected in a given case, and advise his patient accordingly.

Statistics can be very misleading: the writer once heard Sir Berkley Moyihan remark: "Statistics can be made to tell anything, even the truth." The writer will try to make these statistics tell the truth. The 450 consecutive cases represent that number of individuals, and not that number of operations; as many individauls had from two to six or seven operations performed at one time; therefore, if each operation was counted they would probably represent 1,800 to 2,000 operations.

It is difficult to secure comparable statistics from different hospitals. In one hospital, the surgeon bases, on all the facts known to him, his conclusions that a death should, or should not be, attributed to the operation. In another hospital all deaths that occur within two, three or four weeks after operation are counted as deaths from operations; while in another, patients with medical complications, such as pulmonary lesions following a surgical operation, are transferred to the medical side of the hospital, and if deoth follows, they are classed as medical deaths.

In the plan adopted by the writer, all deaths occurring in the hospital are charged to operation, without regard to the length of time, thereafter, or the actual cause of death. This frequently produces a grotesque result; for example, one case died of myocarditis, one of inoperable carcinoma of omentum and abdominal viserae, four weeks after exploratory incision, two of pneumonia developing after patients were convalescing, and up out of bed, two weeks or more, after operation, three of pulmonary embolism, so it would seem that these seven deaths were only a coincidence, and really should not be charged to surgery.

If these deaths were deducted from the 29 deaths, which occurred in the whole series of 450 cases, it would bring the mortality rate down to 4.4% instead of 6.4%. There were also other cases, where there was a question, as to whether they should be charged to surgery or not, but the writer charged them all to surgery, regardless of the real cause of death.

To get a clear conception of the mortality and end results, in the various classes of surgical operations, one must group the cases.

OPRATIONS FOR EMPYEMIA FOLLOWING PNEUMONIA.

Nine consecutive cases operated with no deaths:

One had a tubercular family history, and developed tuberculosis afterwards in the affected lung, but went into a Western climate and was well when last heard from. The others all recovered and are well at the present time.

CANCER OF THE BREAST.

Twelve consecutive cases operated with one death:

This death occurred three weeks after operation, due to pneumonia, which developed two weeks after operation, after patient was convalescent, walking about wards, and wound healed perfectly with no infection whatever.

One case died three years after operation with pneumonia, and was only sick about ten days. There was no sign of recurrence of the cancer.

One case twelve years after operation is living and no recurrence.

One case eleven years after operation is living and no recurrence.

One case five years after operation is living and no recurrence.

Four cases three years after operation is living and no recurrence.

One case died one year after operation with myocarditis, but no signs of recurrence.

One case two years after operation living and no recurrence.

One case eight years after operation living and no recurrence.

CANCER OF THE UTERUS.

Eight consecutive cases:

One died about four weeks after operation. This was due to pneumonia, which developed two weeks after operation, and after patient was convalescent.

One died five years after operation from recurrence of cancer.

One living and well five years after operation, no sign of recurrence.

One had recurrence eighteen months after operation, and was treated with the Percy cautery nine months ago. Wound promptly healed, and has had no sign of another recurrence at present.

One case living and well seven years after operation.

OPERATIONS FOR APPENDICITIS.

Two hundred consecutive cases operated upon with twelve deaths—a mortality of 6%.

By classifying this group into two classes pus cases and clean cases—we find that the twlve deaths occurred out of the sixty-one pus cases operated, making the mortality almost 20% in the pus cases.

It is only fair to state that many of these cases were in extremely bad condition, and appeared to be hopeless, but none were refused operation; consequently the high mortality in these cases.

There were 139 clean cases with no deaths, but that is nothing to boast of, as there should be practically no deaths in clean cases.

OPERATIONS FOR APPENDICITIS COMPLICATED WITH PREGNANCY.

Ten consecutive cases operated upon with no deaths:

One clean case 6½ months pregnant operated upon, developed pyolitis about a week after operation, with a temperature that ranged as high as 106. She miscarried a few days after the pyolitis developed and had a rather stormy convalescence, but finally recovered and gave birth to a healthy child about 18 months after operation.

One case 6½ months pregnant, with a ruptured, gangrenous appendix, miscarried one week after operation and made an uneventful recovery.

One case 6 months pregnant, with a ruptured appendix and a general superative peritonitis, operated upon, miscarried about one week after operation. She had rather a stormy convalescence, but recovered and remained well.

One clean case 2 months pregnant, with acute appendicitis, operated upon, and made an uneventful recovery. They were delivered term, and was delivered of a healthy child. Mother and child both living and well.

Two clean cases 3 months pregnant, operated upon, went on to full term, and made an uneventful recoverq. They were delivered of healthy children, and both mothers and children are living and well.

One clean case $4\frac{1}{2}$ months pregnant, operated upon, and made uneventful recovery. Went on to full term, and was delivered of a healthy child. Mother and child both living and well.

Three clean cases 6 months pregnant, operated upon, and made uneventful recovery. Went on to full term, and was delivered of healthy children. Mothers and children all living and well.

OPERATIONS FOR THE REPAIR OF LEISONS DUE TO CHILD BIRTH.

It is in this group of gynecological cases that the most satisfactory results follow the proper operations and treatment.

These patients are generally neurotic and many of them hysterical. They go to the family physician, who is often so busy and fatigued that he does not examine them thoroughly, as such examinations are often embarrassing to the patient and also to the doctor. He immediately sizes up the case as one that there is no serious lesion present, and prescribes some sedative, which often gives temporary relief, but this remedy soon loses its effect, and the patient drifts from one doctor to another, and many of them get into the clutches of the chiropractor, osteopath, Christian Scientist or some other faker, who robs them of all the money they can get.

We do not know how much these poor, unfortunate women suffer; they are just miserable, and often make life miserable for their husbands and all members of the family; so it is very gratifying to the family physician and the surgeon to relieve these patients of their suffering and see them well and happy again.

The writer has operated 46 consecutive cases of this particular type, where the perineum and cervix were repaired, and the uterus brought up into normal position, and held there by the extra peritoneal modification of the Gilliam operation, without a death, and without a single known recurrence of the displacement of the uterus.

It requires a good deal of time and patience to get the desired results in these cases, as the sympathetic nervous system is generally all out of gear, and dose not respond immediately after operation, so the writer always takes the precaution to tell the patient and her family that she is not expected to be well as soon as the physical defects are corrected, but that it will take from six months to two years for the nervous system to get back to normal; consequently they are not discouraged if they still have some of their nervous symptoms for a short time after operation.

These cases require very careful after treatment and nursing after operation to get the best results. So it goes without saying that sometimes the surgeon does an excellent operation, but fails to get a good satisfactory result o naccount of inefficient after care and nursing.

Upon the whole the writer considers this particular type of cases gives some of the most satisfactory results in the whole domain of major surgery.

FRACTURE OF SKULL BASE WITH SUPERFICIAL HEMORRHAGE ON OPPOSITE SIDE: REPORT OF AN INTERESTING AUTOPSY.*

By STUART GRAVES, Louisville.

On February 20, 1922, I was called to a neighboring city in Kentucky to perform an autopsy, and there are several features in connection with the case which seem of unusual interest from a medical and also a medico-legal standpoint. For these reasons I thought the details worth recording.

The patient was a man seventy years of age who clinically had suffered from what was thought to be chronic nephritis for a number of years. He also had a number of seizures which had been diagnosed clinically as apoplectic in character. He died on January 24, 1922, and under his insurance policy claim was made for $5,000. The insurance company refused to pay without further investigation. The claim was made under an accident clause, it being alleged that the man fell and fractured his skull and died subsequently from cerebral hemorrhage.

When the insurance adjuster first visited the family after the man's death he inquired as to the probability that death had occurred from an ordinary stroke of apoplexy. He claimed that under the terms of the policy the company would be liable if death occurred from accident, but if the accident had been superinduced by natural causes, the company would not be liable for the claim. With the history of at least two alleged previous apoplectic attacks in a man seventy years old who admittedly had had serious impairment of his cardio-renal system it seemed probable that he might have had an ordinary stroke of apoplexy; that he might have fallen and factured his skull, but it also seemed that probably that arteriosclerosis or cerebral hemorrhage had been either the direct or indirect cause of death.

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*Clinical Report before the Louisville Medico-Chirurgical Society.

After arrangements had been completed for the autopsy I was asked to perform it. The first difficulty encountered on my arrival was that the lawyer for the family refused to render any assistance in the way of exhuming or identifying the body. The family was also represented by a young physician who had formerly been here in the Louisville City Hospital as interne, and he had signed the death certificate as fracture of the skull. There were also present another physician and his lawyer. It seems that the lawyer for the insurance company thought he had made arrangements and had everything ready for the autopsy, but on our arrival the cemetery caretaker refused to exhume the body unless a representative of the family was there to give unqualified consent and to identify the body. The lawyer said he had secured the consent of the family and refused to have anything more to do with it. It seemed likely that the deadlock would hold us over for a day or two unless we could arrive at an understanding, so I told the young doctor who represented the family, in the presence of the lawyers for both sides, that it had been my experience in such cases that if the family had a just claim and it could be proved with reasonable assurance, the insurance company had always been willing to pay the claim. If there was any reasonable doubt about it the company had been willing to give the family the benefit of the doubt. With this understanding the family physician proceeded to the cemetery and persuaded the care taker to allow the body to be exhumed.

When we removed the calvarium there was found no sign underneath the scalp of any traumatism whatever except a small bruise back of the right ear. When we started to remove the brain we found that the anterior pole and inferior surface of the left temporal and frontal lobes were stained a dark red, evidently caused by disintegrated blood from an old hemorrhage. After removal of the brain we separated the dura from the base of the skull and found on the right side extending backward from about the inner end of the sigmoid sinus a clean-cut, irregular, linear fracture which could be traced backward as far as the occipital protuberance. Neither in the piarachnoid in this location nor between the dura and the bone were there any signs of injury except the fracture.

The interesting point to decide was whether or not there was any internal hemorrhage. We first made sagital sections through the left frontal and temporal lobes and found two decidedly hemorrhagic areas extending about three-fourths of an inch inward from the surface of the brain. We turned the brain over on its base and opened both lateral ventricles and found them perfectly clean and empty. There was no evidence of hemorrhage in the basal ganglia on either side. There was no evidence of hemorrhage into the brain anywhere except on the left side and in that area it was superficial, whereas the fracture was in the right base. There was no evidence of any hemorrhage in the immediate neighborhood of the fracture.

We completed the autopsy by general examination of the body. We found the kidneys cystic with marked evidence of fibrosis. The heart weight was estimated at about 500 grammes. It was markedly hypertrophied and somewhat dilated. There was evidence of chronic passive congestion in the liver, spleen and probably the lungs. On examining the valves of the heart we found very little fibrosis. The changes in the heart and aorta were not nearly so marked as the senile changes usually noted in a man of seventy years. There was only one arteriosclerotic patch in the whole aorta and that was in the abdominal portion. We examined carefully the vessels of the brain and there was no evidence of any thrombus or embolus. The changes about the circle of Willis were not nearly so marked as one might expect in a man of that age.

In a later conference between the chief adjuster and surgeon for the insurance company and myself I told them I thought it was a fairly clean-cut case of traumatic fracture of the base of the skull with hemorrhage on the opposite side and that I could not explain the lack of the usual evidence of damage on the right side, but that it was a typical illustration of what was known as *force contre-coup*, producing hemorrhage in the base of the brain on the side opposite to that of the fracture, and that it was of unusual interest in that there was no evidence of hemorrhage around the site of the fracture itself. As already stated, the hemorrhage on the left side was superficial; there was no deep hemorrhage in that side.

The foregoing are the main points about the pathology that I thought worth reporting. After our conference the representatives of the family were very cordial, and the company's chief adjuster and physician hinted that they believed the claim would be paid. I understand that the family earlier in the day had offered to compromise for $4,000 and the company had been inclined to pay as much as $3,000.

An interesting point about the case is that there was a fracture five inches in length in the base of the skull on the right side without hemorrhage or any other evidence of trauma on that side within the skull.

DISCUSSION:

J. G. Sherrill: The case reported by Dr. Graves is extremely interesting. I have seen a number of cases where the qeustion of diagnosis arose; that is, whether the patient had a stroke of apoplexy and fell, producing fracture of the skull and death, or whether cerebral hemorrhage was due to the fall. It would be difficult in many cases to determine whether hemorrhage was due to injury or whether hemorrhage occurred first and injury followed. However, in the case described by Dr. Graves the conclusion must be correct, there was hemorrhage from contrecoup. This has been noted in a number of instances. It is somewhat difficult to understand how there can be a fracture of the skull without any hemorrhage near the fracture site, yet we know it does occur. There may be no injury to the blood vessels in that particular situation, and the dura may not be sufficiently torn to cause any hemorrhage.

I recall two interesting cases that recently came under my care at the Louisville City Hospital. One was a boy who sustained severe injury by being knocked down by an automobile. I examined his skull carefully and made the diagnosis of contusion of the brain but no fracture. The boy was dazed and irritable with evidence of injury to the brain, but was not fully unconscious. He did not recover from the dazed condition for several weeks. Roentgen-ray examination showed no evidence of cranial fracture.

The other patient was a man who was in an accident and received a severe injury to the head. Examination disclosed a typical "cracked-pot note," positive evidence of fracture of the skull, but he had no brain symptoms. He made a prompt recovery.

The first patient had no fracture as demonstrated by the Roentgen-ray examination, yet he had a serious brain lesion and considerable trouble for some time afterward. He had muscular tremor and other typical signs of brain injury. The other patient had no evidence of injury to the brain, yet he had a linear fracture as confirmed by Roentgen-ray examination.

These facts tend to confirm Dr. Graves' contention. I think we are all agreed that superficial hemorrhage in the brain would not be likely to cause symptoms of apoplexy or cause death of the patient.

BILATERAL RENAL CALCULI—CASE REPORT.*

Owsley Grant, Louisville.

A female, aged thirty-two years, had suffered for some time from severe pain in the left side of her back. I first saw her in July, 1921, but did not get an opportunity to make a complete examination until about the first of December. At that time, instead of the pain being in the left side, she complained of severe pain in her right back. During the few days prior to my examination there had been some blood in the urine. Her temperature was 102 F., and there was marfied tenderness over the costo-vertebral angle.

Roentgen-ray examination made by Dr. B. W. Bayless showed a rather large shadow, evidently a single calculus, in the right kidney. In the left the shadow was much less distinct in outline and we thought there were either several small calculi or one calculus with very dense pus formation. Both plates are interesting, the one of the left side especially so, the renal pelvis presenting the typical appearance of one injected with thorium, although nothing of this kind was used prior to making the picture.

The phthalein output of the right kidney was about four times that of the left, i. e., 40 per cent on the right side and 10 per cent on the left side after half an hour intravenously.

At this point it became a serious question for consideration whether it would be better to operate upon the good side or the bad side first. I finally concluded to open the right kidney first, as we knew there was but a single on that side, and after the condition of that kidney had been improved by drainage and treatment, to have the patient return for operation on the left side if necessary.

The right renal fossa was opened and many adhesions found about the pelvis. The kidney was not delivered through the wound; it was simply incised through the pelvis and the single calculus easily removed with forceps. I did not attempt to suture the pelvis, but drained to the outside. Urine drained through the opening for three days then ceased. Thereafter the urine passed through the ureter in the normal way and within a week the patient was walking about.

The operation was performed three weeks ago and the woman was in my office today feeling perfectly well. The second operation will be postponed until about the middle of February.

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*Clinical Report before the Louisville Medico-Chirurgical Society.

I thought it would be interesting to present these x-ray plates because we do not often see bilateral renal calculi.

DISCUSSION:

B. W. Bayless: From a radiologic standpoint there is little to be said in connection with the case reported by Dr. Grant. Bilateral renal calculi are quite unusual. When Dr. Grant operates upon the left side I believe he will find several calculi in the calyces and probably some in the renal cortex. I think he will also find marked infection on the left side.

Louis Frank: Dr. Grant is to be commended on the manner in which he handled the case reported. He was certainly correct in operating upon the right kidney first, that is, the one showing the least involvement. From the plate he has shown it would seem the left kidney has the greater number of calculi, and should it become necessary to remove that kidney at the time of his operation, the patient will still have one good kidney left. Where bilateral calculi are present it is always wise to first operate upon the kidney least involved, leaving the worst one until last.

While bilateral renal calculi are not common they are not rare. The recurrence of renal calculi is relatively quite frequent. The literature shows there is recurrence in about thirty per cent of cases, and this agrees wiht my personal experience. I have seen quite a number of cases of that kind.

I also wish to commend the method Dr. Grant employed in removing the calculus through the kidney pelvis. This, I believe, is the accepted procedure when calculi are in the renal pelvis in such stiuation that they can be removed without splitting the kidney as was formerly the custom. The latter plan always left a more or less damaged kidney and calculi were frequently overlooked. Of course, this does not now apply as all cases of this kind are carefully studied by means of the Roentgen-ray.

Personally, in the cases I have operated upon, I have always sutured the pelvis. It is a fact, however, that if the fatty layer overlying the capsule is not seriouly damaged healing may occur rapidly without stuture. I think it is a good idea to study the capacity of the renal pelvis before undertaking the operation, if such a procedure is possible, by means of a pyelogram, because we often find a dilated kidney pelvis, and we must remember that not infrequently there is a badly infected kidney pelvis which will be revealed by the picture. The infection may be the source of recurrence of calculous formation. Where the kidney pelvis is considerably dilated I think it is advisable as Kelly has done to lessen the capacity of the pelvis by resection and thus attempt to overcome the tendency to reformation of calculi in the kidney pelvis.

J. G. Sherrill: Dr. Grant certainly handled the case reported exceedingly well. Such cases are unusual and often tax the judgment of the surgeon. Calculi in the renal pelvis and ureter are not very infrequent, but bilateral renal calculi are rather rare. I think it is well in such cases to operate on the best kidney first, of course, doing as little traumatic damage as possible; then later when the condition of the patient has improved to operate upon the other side. I had occasion quite recently to assist Dr. E. Lee Heflin in operating upon a patient who had two renal calculi, one in the kidney structure and the other in the pelvis.

I think we should look to the prevention of the formation of renal calculi as much as possible. By regulation of diet, the ingestion of an abundance of water, etc., I believe we can lessen the frequency with which calculi form. In the presence of bilateral renal calculi I am not in favor of inflicting traumatism by injecting anything into the kidney pelvis. This procedure might cause urinary suppression and further complicate the case. I think where bilateral calculi are present it is the best plan to operate on one side at a time, removing the calculus from the pelvis as quickly as possible.

It is remarkable how much traumatism the kidney will sometimes withstand. Henry Morris, of London, reported the removal of one kidney and partial resection of the other for tuberculosis with recovery of the patient. With a fair amount of urinary secreting surface left the kidney may be traumatized considerably and the patient still live.

Owsley Grant (closing): Some one asked about the possibility of focal infection in the case reported: The tonsils are normal and with one or two exceptions the teeth are perfectly sound.

As to suturing the kidney pelvis: I agree with Dr. Frank that suture is the better procedure in practically all cases. I tested the capacity of the renal pelvis, but only with sterile water; for the reason Dr. Sherrill mentioned I was afraid to introduce thorium.

The reason the kidney pelvis was not sutured was that we were fortunate enough to find a place between the artery and vein through which to extract the calculus without injury to the blood vessel. The kidney was not removed from its bed, and the proximity of the renal vessels over the pelvis with the kidney still in its bed decided us against attempted suture.

THE REMOVAL OF MORBID FEARS AND SIMILAR BESETMENTS—THE PRINCIPLES IN SOME ILLUSTRATIVE CASES.

By Tom A. Williams, M.B., C.M.,
Washington, D. C.

The fundamental difference between the two types of phobias, those rapidly curable, and those that cannot be cured, is that in the latter we find an emotional predisposition of the patient inherent in the constitution of his organism which compels him to react unteleologically to circumstances which the average man deals with without serious perturbation. This is of an incurable type and resembles, in its clinical aspect, an exhaustion psychosis, so much so that to the condition has been given, by one writer, the name of "Psychasthenia." All that can be done to alleviate his lot is to choose an environment and to teach him to avoid what tends to augment his emotivity.

Very different is the genesis and mechanism of the type of phobia which is so readily removable by present psychotherapeutic methods. The origin of the morbid symptoms can be found by an intelligent anamnesis. They do not proceed from an inherent emotional instability. The discovery of the mechanism of origin of the particular phobia is an important element in enabling the patient to comprehend the real nature of his condition. It is only when this is understood that he is able to view his reactions rationally, almost impersonally. He learns to see in what way they have occurred, and is thereby enabled to forestall them. He learns to view a situation scientifically, whereupon the morbid effect which it has formerly aroused ceases.

It is essential to change the subject's notion as to the meaning of the situation which provokes the emotion. The emotion cannot be changed until the subject envisages the situation differently.

Janet long ago outlined the principle of substitution in the removal of hysterical ideas, and the same principle has been set forth under the name of "The Setting of Ideas" by Morton Prince.

This method is essentially very different from the former methods by which these patients were treated. such as by emphasizing the lack of gravity of the phobia, by ridiculing it, by attempting to distract the patient in occupations or recreations, by hypnotism, isolation or rest cures. These methods, so far from being beneficial, are harmful, and none of them aim at the cause of the condition. as all medical art should.

The *essential cause of phobias* of this type is a *conditioning of the affective reaction* towards a given situation *because of a mistaken notion regarding it.*

It is by the use of the principle of reassociation and substitution, performed, however, with the deliberate understanding of the patient, that we effect the disappearance of phobic reactions to environment.

AGROPHOBIA COMBINED WITH CLAUSTROPHOBIA REMOVED IN ONE WEEK.

A woman of thirty-three years consulted me because, having frequent attacks of what she feared was heart disease, she was unable, without an intense emotional disturbance, to remain in a church or theater or, unless accompanied, to cross a street. I found no physical disease, the only signs present being those of hyperthyroidism.

The first attack had occurred eight years before, on a very warm day, in a poorly ventilated church, when she became very ill and not wishing to create a disturbance, forced herself to remain, though the compulsion to leave the church was intense.

The diagnosis was that the agrophobia and claustrophobia were hysterical in origin, arising from the powerful suggestion of the recollection of a particular experience, made efficacious now only by the timorous imagination of the patient. The hyperthyroidism was considered as secondary and relief of the chronic emotional strain was believed sufficient to cure this. Then this agrophobia and claustrophobia having been traced to a single incident upon which they were dependent, were removed in less than a week by efforts directed towards giving the patient an understanding of their mechanism, compelling her to grasp it and then compelling her to take an exercise which afforded a practical demonstration. She remains well two years later.

SOIDISANT PANOPHOBIA WITH BAD HEREDITY, IN REALITY PRODUCED BY FAULTY TREATMENT IN INFACY, CURED BY RE-EDUCATIVE PSYCHOTHERAPY.

A professional man, twenty-eight years old, became beset by nameless fears, so that he finally withdrew himself from all society and friends, and finally made two attempts at suicide. He feared he must be a physical degenerate and thought heredity might have something to do with it. I discovered that he had had a near relative who was a believer in the hardening process for the development of the physical and moral welfare of youth and who had manifested this by resorting to many irrational procedures which had produced in him a chronic fear. I first explained to him that his cowardice was a psychic and not an instinctive habit, and then re-education consisted of a reconstruction of the fear situation of his infancy, and of an insistance upon the possibility of a readjustment of his reactions towards himself and the world. After a short time he obtained control of his fear, has since married and led an active professional life.

PHOBIA OF THE DARK REMOVED BY RE-EDUCATIVE PERSUASION AFTER SHORT ISOLATION.

A girl of sixteen years would frequently wake in the night, very much afraid unless soothed by some one sleeping with her. She had been much spoiled, owing to a supposed weak heart, and had always been considered delicate. Inquiry showed she had been told by a servant, when a small child, terrifying stories—stories which had left their horror upon her. Fears were of fires and burglars and appeared only at night.

She was given literature about the psychology of fear, and what she could not understand was explained to her. Then she was given exercises in mental concentration and was urged to apply them to the study of her own feelings of nocturnal apprehensions, urging her to grasp the fact that the fear and shame of her fears prevented her from facing and examining them, which was most essential.

OBSESSION OF INFERIORITY LEADING TO FOUR ATTEMPTS AT SUICIDE, CURED BY RE-EDUCATIVE PERSUASION WITHOUT ISOLATION.

A farmer's son, twenty-two years old, having made four attempts at suicide, was brought to me. Examination showed no physical disorders, but a serious psychological situation.

He had the management of his mother's farm, but, through the interference of a younger brother with his plans, and the meddling of neighbors, acquiesced in by his mother, the situation became intolerable to him. He was very shy, especially in the presence of girls, was teased by other boys, and was most ashamed of a mental inferiority which he feared had been caused by his own onanism. Confessing that if he could be cured of this he would be glad to live and work, he was given assurances and asked to think them over, meanwhile promising not to commit suicide. Discussions were resumed the next day and in ten days he returned home in good spirits to go to work.

THE PREVENTION OF PHOBIAS IN INFANCY.

For several weeks, a little boy aged three years and nine months, had daily been visiting the zoological garden in company with a French maid of exceptionally forceful character. One night he began to cry, a most unusual occurrence—soon after he was left alone, as he feared there were lions in the house. It appeared that he had been much impressed, although unterrified, by the fact that the lions had roared more loudly than usual that day. He was assured in an affectionate manner that the lions must stay in their cages, and that therefore there could be none in the house. Then the situation was passed off in a joking, happy manner, the boy's sense of security regained, and the state of terror at once dismissed.

MEDICAL SUGGESTION AS CAUSE OF DISEASE.

Some varieties of phobia arise from suggestions of medical origin; and, in many instances, morbid fears are maintained by the attitude of medical men of which advice is sought. The neorulogist who sees these mismanaged cases has to studiously avoid any procedures which may seem to the patient to maintain attention upon the organ concerning the function of which the phobias exist.

In a case where fear of loss of sight had accompanied a ptosis of psychogenetic mechanism, the condition had been greatly aggravated by the frequent repetition of examinations, ophthalmological, otological, serological, endocrinological, none of which had sufficed to ascertain the genesis of the tic. This was readily done by an intelligent anamnesis in conjunction with a study of the actual character of the ptosis.

It was necessary to sedulously avoid even examining the patient after the first diagnosis. Visits were studiously neglected as a means of persuasion that there was no condition demanding surgical or medical procedure, and the taking of these precautions enabled a cure to be obtained in a few weeks.

PANOPHOBIA.

In persons suffering with panophobia there is a profound disturbance of the physical organism, usually toxic, or at least, chemical in kind. It is merely a state of painful affectivity, due either to an erythism of the central apparatus, or caused by an excitation of the peripheral receptors.

French psychiatrists have long supposed these situated around the great viscera. They have learned the disorders of this kind are cenesthopathias. Protopathic sensibility is the name given to a similar concept by other clinicians. More recently the excitation of these receptors has been connected with modifications of the internal secretions. In turn, endocrine disturbances are traced to excitations and inhibitions of this vegetable nervous apparatus.

Nowadays the inductions of visceral neurology are influencing a good deal of clinical investigation tending in the direction of chemistry through the theory of the hormone.

Cenesthopathic disturbances not only produce local discomfort, but strongly influence the personality and consciousness of the sufferer; they often cause sensations of strangeness to the patient's selfhood and so sometimes engender the fear that the patient is losing his mind. The best way of getting rid of this fear is to ignore it and deal with the mechanism of which it is an indication.

With cenesthopathic sensations of physical origin, medical means must be sought. Surgical measures are to be avoided; for, in true cases the sensation persists in spite of the operation. Psychic means, of course, are inefficacious against organic sensations of physical origin.

THE MUTUAL INTEREST OF THE PROFESSION AND THE PUBLIC.

By W. S. Rankin, M.D.,
Secretary North Carolina State Board of Health, Raleigh, N. C.

The profession and the public have a large mutual interest which unites them in a common task and draws them toward a single objective. That interest consists of a surplusage of unnecessary, untreated, and inadequately treated disease and impairment which, in its totality, constitutes a waiting field of medical practice from two to five times greater than the present occupied field of medicine. This last statement constitutes the major premise of this paper, and is so related to what follows as to make its assimilation by the digestive or analytical process advisable before proceeding to other related considerations. We turn then to a brief and rather general analysis of the unoccupied field of medicine.

Beginning at the beginning with maternity we find from 25 to 35 per cent, say an average of 30 per cent, of the births of this country, a total of approximately 750,000 births a year, unattended by physicians. These women pass through the valley of the shadow of death with no ray of the light of science to dispel its gloom and with only the flickering candle of the midwife to guide them through their travail. And to the labors without medical attendant the enormous unsupplied need of pregnancy for medical supervision; add again the very inadequately supplied need of the puerperal state with medical care, and you have an unoccupied field of maternity from two to five times the size of that which is cared for.

From infancy we pass to childhood. Add absent, delayed, and inadequate medical attention to the cases of the acute disease of early life—measles, whooping cough, scarlet fever, diphtheria, meningitis, early manifestations of tuberculosis, etc., and add to that the needed treatment for the common defects of childhood—how significant the term—the 20 per cent or 4,000,000 of the public school children of the country with defective vision that needs correction, the 75 or 80 per cent, or 15,000,000 of the public school children whose mouths need treatment in order to prevent subsequent digestive disturbances, rheumatism and cardio-vascular damage, and the 5 per cent or 1,000,000 of the public school children who need operations for tonsils or adenoids, and again consider the relative sizes of the occupied and unoccupied fields of medicine.

From childhood we hasten on to adolescence, the age of sex awakening and social restraint of the sex impulse, the premarital state. Here we find susceptibility to, prevalence of, and damage from venereal diseases greatest. With syphilis causing one-tenth of all deaths, responsible for 20 per cent of the inmates of our institutions for the insane (whose totatl population approximates the total population of our universities), with gonorrhea as the chief cause of sterility and the principal contributor to the gynecological wards of the hospitals, with its enormous drag on efficiency and industry, in combination, a group of diseases which in the height of the war took more men out of the line of battle than shot and shell and gas, and you have a field of medicine that largely sustains three specialties, gynecology, genito-urinary surgery, and skin diseases, and, in addition, generously contributes to the general run of the practice of medicine. How much of this enormous field is occupied? From 16 to 20 per cent of venereal diseases are reported by physicians and perhaps not more than twice that percentage, 30 or 40 per cent, are treated by the profession. Of the cases that are seen by physicians and treated by them, it is safe to say that even those cases do not receive or take one-third the treatment that is needed both in the interest of the individual and the public. No one well informed as to the prevalence of this group of diseases can seriously consider the treatment given as compared with the amount of treatment needed without again agreeing that the unoccupied field in this sector is from two to five times greater than that which is adequately held by the forces of science.

And again, we hasten on. We have arrived at adult life. In the interest of time we introduce but one witness, but that an altogether sufficient one for the question involved. The Life Extension Institute of New York, in the last two years, has examined something like 250,000 people, both sexes, all races, engaged in various industries, and living in different parts of the country, the persons examined being selected indiscriminately with reference to appearance. The Institute found that about 60 per cent of those examined were in need, at the time of examination, of medical treatment, and not more than 20 per cent of those needing treatment were receiving it. In short, the Institute found that in adult pathology the field was about one-fifth occupied and four-fifths unoccupied.

Truly the fields are white unto the harvest, but the laborers are few. This great surplusage of disease makes the interest of the profession and the public one, binding citizen and physician in a common purpose, coupling the determination of the public to remove disease surplusage with the ability of the profession to bring about the removal. Let those shallow minds and timid souls among the brethren who fear or feign to fear a curtailment of professional opportunites and rewards, both material and immaterial, remember that only through the use of medical science, only by making the field of medicine larger and more attractive, can this waiting, unoccupied field of medicine be reclaimed from the domain of ignorance and need.

Postoperative Biliary Fistulas.—In the series of operations in 166 cases of biliary fistulas reported on by Balfour and Ross there were sixteen deaths, a mortality of 10 per cent. In operations undertaken for various conditions which were responsible for fistulas, the percentage of deaths shows very clearly the relative risks which accompany these operations. For instance, in thirty-five cases of stone in the cystic duct, no operative mortality occurred, while in the groups ''division of the common duct'' and ''stricture of the common or hepatic ducts,'' six deaths in twenty-one cases were due largely to chronic jaundice and sequels so common in such cases.

DIRECTIONS FOR CLEANING UP A TOWN.

Manton M. Carrick, Dallas, Texas.

To obtain results I would first call a civic rally to arouse interest and enthusiasm in the clean-up idea. An impromptu committee consisting of a few public-spirited men and women, who can be relied upon to make the rally a success, must form the nucleus of the movement. This committee will naturally become the charter members of your ''Clean-Up Club.''

The best leader is always the man or woman who has the capacity for imparting enthusiasm to others and getting them to work. I would enlist the interest of the mayor and town officers; if you should have one, and by all means the newspaper editors, ministers, lawyers, doctors and superintendents of schools. Your chief asset will be the good will of all. Get a permit from the mayor and hold the meeting in the town hall if a larger hall is not available.

The hearty co-operation of the editors of the local papers is necessary. Announce through your press committee in all newspapers for at least a week beforehand that there will be a Civic Rally on a certain date, to which every man, woman and child is invited. If possible arrange to have some city beautiful or health film shown at your local motion picture house prior to the rally, advertising this fact well,, laying stress on the free side of the feature. Publish editorials and brief, pithy articles along this line of civic pride, including special mention of the children. You will find the little folks your strongest allies.

Induce your mayor to set aside a health period calling upon citizens for co-operation, the object being to show the necessity of clean-up campaigns. Request your minister to discuss the moral side of the question from the pulpit; invite physicians to give lectures on sanitation, food, problems of parks and playgrounds.

These are a few suggestions of how to arouse interest in a clean-up crusade. Each town, of course, has its own individual problems to solve and actual work is obtained only through persistent and ceaseless activity on the part of the citizens.

Do not ask some one to preside simply out of courtesy to that person. Select a man or woman having executive ability, one who is a ''live wire.'' Not a moment should lag at the meeting. He should call the meeting to order, stating briefly, entertainingly and humorously its appeal. Remarks from the audience should be requested. Election of officers and committees follow. You are then a full-fledged organization.

Arouse interest of the business men, so that they will advertise this campaign in their places of business. Have the teacher and preacher announce it. Take pictures of undesirable objects, lots and premises and place their pictures in conspicuous places. Posters, dodgers and circulars may be distributed. Let the people know the actual condition of the town.

It is hardly necessary to say that the work must begin from within out; that the campaign must begin in *our homes* by cleaning them attic to cellar, making war against cobwebs, dust, insects, rodents and other disease-breeding factors. Soap and water, with elbow grease for floors and woodwork, is a better antidote against disease producing organisms than fumigants or disinfectants. Invite the sunshine into your home through every possible opening. Don't forget to take an inventory of conditions under the floors of your domicile—don't bar the entrance of fresh air.

Do not cover filth with lime, but rather remove the filth and then sprinkle lime on the surface. Inspect your roof gutters, cistern, flower pots for standing water or mosquito breeding. Assure yourself that the family water supply is safe, by a survey of the well and cistern to see that it is covered and protected against dust, insects and surface drainage. Quit keeping company with the dangerous fly by keeping your garbage in closely covered pails.

Manure, if any, should be stored daily in covered boxes and the ground sprinkled with powdered borax.

Don't let the lumber dealer sell you anything but 16-mesh screens for your doors and windows. Play Santa Claus in the bathroom, so that this department of the home is fully equipped, convenient and inviting.

Get busy with the mower and rake until your yard resembles an emerald velvet rug. Spread the "fever" throughout your neighborhood. With a little labor and very little cost the home can be more healthful, cheerful and habitable.

If you live in a town having paved streets there should be no trouble in keeping them clean if you co-operate with city officials. In smaller towns not having "White Wings," as the Man with the Broom is known, sanitary garbage receptacles should be placed on street corners for papers and fruit skins. The "Clean-Town Club" should insist on the regular collection of street refuse and garbage.

A modest street-cleaning equipment is essential, if nothing but hand carts, brooms and shovels. The refuse collected may be placed in convenient places and carried by wagons to the dump, where it should be buried or burned. No dump should be located on a water shed. Every community can have improvised incinerator. In very small towns where there is no municipal garbage cart to dispose of tin cans and similar debris this refuse should be buried. The householder should burn all small rubbish in stoves.

Enlist the children. Organize them into leagues, having a continuous background of constructive work. Have them make reports covering such as dirty cellars and back yards; mosquito and fly breeding areas; rat harbors; refuse in streets and alleys; over-filled garbage cans, etc. A rat killing contest might be started. The employment of snaptraps, poison (carefully placed away from domestic animals or fowls), wrecking in the presence of a dog is a far more practical procedure to follow than that adopted by the Pied Piper. Prizes should be offered to stimulate and hold their interest.

Pick out the several sanitary problems of your town and designate a committee to look after each one. Have a committee on foods that will inspect groceries, fruit and drink-stands, bakeries, restaurants, slaughter houses, dairies or any place where food is prepared for use. Don't allow the food that goes into your home to have first been the roaming place of flies. Put under glass all food that can be put there, and above all, don't allow a person suffering fro ma communicable disease to handle food. It is suggested that a medical examination be required of all food handlers.

A committee on public buildings could do wonders towards seeing that schools, picture shows, jails, court houses, railway stations and town halls have proper ventilation and proper sanitation. See to it that no dry sweeping is done; using wet sawdust or a mixture of oil, sand and sawdust is a much more efficient means of cleaning up and also more pleasant to all parties concerned. The picture shows should have inlet and exhaust fans that provide 1,200 cubic feet of air per hour per occupant. And these fans should be so arranged as to not stir up dust or to convey sneeze and cough droplets over the theater. While on your rounds of inspection do not forget the lowly cuspidor, that breeding place of germs. Insist on a disinfectant solution being kept in the cuspidors and also that they be emptied frequently and cleaned thoroughly.

There should be a committee on sewage and water to investigate your town's method of sewage disposal and the purity of its water supply. Take care that no contaminating agencies such as garbage dumps, dairies, slaughter houses or dry closets drain into your water reservoir and thereby cause a water pollution which may mean death to the citizens of your town. If you have swimming pools in your locality, see to it that there is a continuous change of water in them, that expectorating in the water is not allowed, that bathing suits are sterilized and that persons suffering from communicable diseases be barred.

Take your city ordinances under consideration. Are any of them antiquated? If so amend or abolish them and formulate such new ones as may be necessary to the proper sanitation of your city. Work with your City Health Department in bringing about the reporting and quarantining of diseases, the regulation of dairies and slaughter houses, the proper disposal of sewage and garbage, regulating air contamination and such other steps as shall be needed to meet the peculiar problems of your community.

For detail information on any phase of sanitation write your State Board of Health.

M. M. CARRICK.

SYPHILIS.

By SAMUEL J. ROSE, Winchester, Ky.

Early diagnosis of primary syphilis is of the utmost importance. The psychological moment for treating syphilis is when the chancre first appears. Vigorous and radical treatment at that time will assure the permanent disappearance of physical and seriological symptoms in a far greater portion of cases than if treatment is instituted a few days later. Delay in beginning treatment often makes radical cure impossible.

Diagnosis: In making differential diagnosis stress should be laid on: (1) A history of exposure and (2) the character of the sore.

(1) A history of exposure: The incubation period of chancre is two to six weeks; of chancroid one to seven days; herpes genitalis occurs without relation to exposure.

(2) The character of the sore: A chancre is usually though not always single, and may be located anywhere on the genitalia (glans or shaft of the penis or on the scrotum), on the lips, the tongue, or elsewhere. It is an erosion (which by mixed infection may become an ulcer), regular in outline, set upon an "induration" which projects beyond its base into the surrounding tissues. It is not painful and does not spread. It is often a very insignificant looking lesion, though the typical Hunterian chancre is a large sore. However, no matter what its size, its distinguishing characteristics is that it is an ulcerated tumor.

Chancroid occurs most often in the coronal culcus close to the frenum, and is frequently multiple. It is a dirty ulcer, discharging large amount of pus, with undermined edges, spreading rapidly, and painful. It is always soft and does not present induration unless it has been cauterized or unless it has been rubbed for some time against the patient's clothes, when induration may be considerable. No sore should be cauterized until diagnosis has been made.

Mixed stores: Studies in Europe have shown that the great majority of venereal sores are syphilitic. If the chancroidal and syphilitic infection occur together, the sore looks like the chancroid, though spirochaete can often be demonstrated in its secretion, no matter how typically chancroidal it may appear to be. Mixed infections must therefore be kept in mind.

Herpes genitalis is an infrequent source of confusion. The lesions are small, non-ulcerated unless inflamed, not indurated, not spreading and not painful.

Balantitis grangrenosa is rare. It begins as a small whitish patches of superficial ulceration, spreading rapidly, discharges offensive brownish pus and unless treated quickly becomes gangrenous. As in chancroid a mixed infection with syphilis may also occur.

Diagnosis: The finding of the spirochaeta pallida by means of a dark field microscopic examination, of course, is positive evidence of syphilis when this method of diagnosis is available, but even then care should be taken not to confuse the spirochaete of syphilis with the spirochacte refringens, the latter being obviously coarser, the terms fewer and less regular. The spirochaete dentium seen in the mouth is much more minute than the spirochaete pallida. Negative findings by the dark field method do not necessarily mean that the patient is not infected with syphilis and where this method of diagnosis is available continued examinations should be made. Likewise a negative Wassermann does not mean the absence of specific infection and should also be repeated at least every two weeks or every month for three months. When possible the microscope should be used to make the diagnosis since a few weeks or a month must pass before there is much probability of getting a positive Wassermann.

General physical examination: Once a positive diagnosis is made preparations for treatment should be at once instituted.

(1) *Careful general physical examination, paying particular attention to*:

(a) The mouth (bad teeth, pyorrhoea, mucous patches).

(23 The eyes (iritis, keratitis, pupillary reflexes).

(c) The central nervous system (knee jerks, ankle jerks, Romberg sign, history of headache, vertigo, etc).

(d) The cardio-vascular system (myocarditis, endocarditis, arterio-sclerosis).

(e) The skin (eruptions, pigmentations).

(f) The anus (mucous patches, condylomata).

(2) *Complete urinalysis should be made and albumen* especially should be looked for.

(3) Blood should be taken for Wassermann and sent to the nearest laboratory.

(4) If the physician intends to use mercury by the inunction method, the patient should first be sent to the dentist to have his teeth put in good condition. The dentist should be told that the patient has syphilis.

Treatment: Opinions as to the exact method in the treatment of syphilis vary greatly. Most all of us agree that the patient should have at least three administrations of arsphenamine together with the mixed treatment while others advocate a more drastic course. Hugh Young's (of Hopkins) treatment briefly stated is as follows:

A. As soon as positive diagnosis has been made from the smears (but not before).

1. Begin local treatment with calomel ointment (30%), rubbed well into the sore by the patient himself for at least ten minutes twice a day. This is very important.

As Harrison puts it, the patient should "try to rub the sore away."

2. Keep the sore clean, free from crusts and dressed with soft gauze smeared wit hcalomel ointment.

B. At the end of one week's intravenous treatment (two doses of neosalvarsan and four or five cyanide of salicylate of mercury)—that is, on the seventh or eighth day of treatment.

1. Circumcise the patient providing the chancre is on the prepuse and its location favorable.

2. If the circumcision is impracticable, either because of the situation of the sore, or because of the condition of the patient, continue treatment with calomel ointment as above for at least one more week.

The outline for the administration of neo-arsphinamine by Young is to give three-tenths of a gram intravenously every five days until four have been given, every second day give one one hundredth of a gram of cyanide of mercury hypodermatically. The first injeciton of arsphenamine is three-tenths of a gram, the second four and a half tenths, the third six-tenths, the fourth seven and a half-tenths and here the treatment is discontinued for a month. The cyanide of mercury is often given with grey oil alternately. The above is what he calls the first course. The first month he gives five and seven-tenths grams of neo-arsphenamine, eleven hundredths grams cyanide of mercury and four-tenths of grey oil.

During his second course (tenth week) the patient receives three and six tenths grams of neo-arsphenamine and five tenths grams of grey oil. Patient rests one and a half months and the third course is begun. This is the seventh month and is the same as the second course. Patient rests three months.

The fourth course (eleventh month) is the same as the second, i. e., neo-arsphenamine and grey oil once a week and rest again for a month. At the beginning of each course a Wassermann is taken, but regardless of the findings the treatment is continued.

SECOND YEAR OF TREATMENT.

Rest for three months and at the end of this period, do a Wassermann on the blood and make a complete serological examination of the spinal fluid obtained by lumber puncture. If both blood and spinal fluid are negative, give no treatment. If either or both are positive, begin treatment again with course number two, i. e., neo-arsphenamine and grey oil once a week (dose of the grey oil being one-tenth of a gram).

Four months later make a Wassermann on the blood and if negative give no treatment. If positive, treat with course number two.

Months 19 to 24 or end of the second year. Make a Wassermann on the blood and lumber puncture with complete serological examination. If both are negative give no further treatment. If either or both are positive, begin again with course number two—neo-arsphenamine and grey oil once a week. This process is to be repeated until spinal fluid and blood are negative at which time the patient is discharged as cured.

Contra-indications to arsenic. There are a few conditions contra-indicating the use of arsenic which should be borne in mind. They are:

(1) Myocarditis, (2) advanced non-syphilitic or hepatic disease, (3) Addison's diseases, (4) advanced arterio-sclerosis, (5) advanced disease of the central nervous system,

(6) advanced pulmonary tuberculosis with cavity formation.

2. Certain types of syphilis require the cautious use of arsenic. They are:

(a) Visceral disease of syphilitic origin such as that involving the liver, lung, heart and arteries. These must be treated with arsenic, but the dose, especially the first one should be small, two-tenths of a gram and subsequent doses increased with care.

No increase of more than two-tenths of a gram over the preceding dose should be given and should untoward effects or symptoms arise from any dose the next one should not be increased, but should be the same or less.

(b) The most frequent important relative contra-indication to the use of arsenic is the presence of a kidney lesion, and for this reason it is highly necessary to examine the urine for albumin. This should be done before any treatment is given, every two weeks during the treatment of mixed arsenical and mercurial treatment and every month when mercurial treatment is given alone.

General reactions following arsenical administration. Infiltration and thrombosis are caused by poor technique. General reactions are rare and only once in thousands of cases do every severe reactions occur provided the patient's intestinal tract is empty. Some of the reactions that may occur are: (1) *Vasomotor symptoms* such as puffiness of the face, dilatatio nof the pupils, sense of constriction of the throat, precordial distress, and oedema of the glottis, infrequently extreme and ending in death. (2) *Syncope.* The patient becomes faint during injection. (3) *Peculiar taste* in the mouth suggesting ether, chloroform or garlic. The above are some of the reactions that may come on immediately while other reactions that may follow by a few hours are: Rigor, rise of temperature to 101-104 F., vomiting, diarrhoeas with pains in back and legs, urticaria, herpes labialis or herpes zoster at various times from a day or two to a month or two after a single injection or course of injections the following may be noticed: Albuminuria, with or without casts, headache, lassitude or loss of weight, appetite and sleep, erythema and dermatitis, jaundice and finally severe cerebral symptoms with intense headache followed by mental confusion, coma and death. Autopsies show capillaries blocked with thrombi in the brain, kidneys and sometimes in the liver.

DEATH FROM CARDIAC EMBOLUS—CASE REPORT.*

By Leon K. Baldauf, Louisville.

I deside to briefly report a heart case, the patient being a woman of 50, whom I saw at the request of Dr. B. C. Frazier while he was absence from the city. She was dyspneic and her pulse was irregular, but not very rapid. She had been under the influence of digitalis for some time.

Examination showed the heart enlarged and extending toward the right side. Theer was a definite pre-systolic murmur probably due to mitral stenosis. The patient seemed to be doing fairly well and the dose of digitalis was reduced. I saw her one evening and again the next day about noon. At two o'clock I was notified by telephone to come immediately as the patient was dying. When I reached the house she was cyanotic, she had Cheyne-Stokes breathing; she died that night. My opinion is she had an embolus from separation of vegetations on the cardiac valve.

DISCUSSION:

Ben Carlos Frazier: I have known the patient mentioned by Dr. Baldauf for a great many years. She was under my care for a while five or six years ago, and has been under my observation from time to time since. I had not seen her, however, for quite a long time until recently when she sent for me because of extreme nervousness and heart trouble. In the meantime I believe she had seen another physician who advised her to have her teeth extracted. She had all her lower and some of her upper teeth removed and had severe shock at that time, became cyanosed and had to be taken home. That was the beginning of her last illness. She was never able to leave her room after her teeth were extracted. She suffered constantly from dyspnea, depression, nervousness, etc. I asked Dr. Baldauf to see her during my absence. Her teeth were withdrawn the latter part of October.

I agree with Dr. Baldauf that the patient probably died from embolus. I think this case ought to be a lesson to doctors and dentists who advise the wholesale extraction of teeth, especially in cases of cardiac disease.

L. K. Baldauf (closing): One feature that we failed to mention was that this woman gave the history of a definite attack of rheumatism, and it was evidently with the idea of relieving the rheumatism that her teeth were extracted. My recollection is that it was the intention to remove all her teeth, but the reaction was so severe that they did not complete the job.

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*Read before the Louisville Medico-Chirurgical Society.

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ANNUAL MEETING, PADUCAH, 1922.

COUNTY SOCIETY REPORTS

Todd—At last after a period of nearly six months quiescence we have succeeded in reviving our Todd County Medical Society, and on Wednesday, July 5, we had quite an interesting meeting with eight of the members out of fourteen in the county, viz.: R. L. Boyd, President, Allensville; E. M. Frey, Guthrie; J. R. Crittenden, Gordonsville; G. W. Lacy, Kirkmansville; J. F. Standard, B. E. Boone, A. T. McKinney, and your humble secretary.

John H. Blackburn, of Bowling Green, was with us and talked to us about the doctors and his county society, and his talk was very interesting as well as instructive, and we hope his words may bear fruit, and you could see each member present cast occasional glances at some other fellow as if to inquire, are you guilty, too. But each one seemed pleased to help bear the burden of the other fellow and all promised to do better in the future.

After discussion of various subjects of interest to the society and the doctors who are not members we adjourned to meet again at Elkton the first Wednesday in August when we hope to have every doctor in Todd County present and we would also extend a pressing invitation to members of other county societies, and especially Logan and Christian County, as it is only a few minutes run and we meet about 1:30 to 2 p. m.

Respectfully,

W. E. BARTLETT, Secretary.

The following resolutions were adopted by the Nelson County Medical Society on the death of Dr. Hugh D. Rodman:

Whereas, our esteemed brother and associate passed from us, leaving behind him the record of a long and honorable service; and,

Whereas, We found him always a genial, kindly friend and companion, a loyal member of our society, and a physician faithful to the truest, highest ethics of our profession; therefore, be it

Resolved, That we mourn the loss of one who labored so earnestly to uphold the fine traditions of those who saw in the practice of medicine one of humanity's noblest callings; who responded unhesitatingly to every call of duty; who resisted manfully all encroachments upon the dignity and worth of our profession; who extended to all his brother psysicians due courtesy and consideration, and who sought conscientiously to fulfill his every obligation as citizen, physician and official; and be it

Resolved, That we extend to his family our deepest sympathy in their bereavement; and be it

Resolved, That these resolutions be published in our county paper, and spread upon the minutes of our society.

Louis Frank

PRESIDENT KENTUCKY STATE MEDICAL ASSOCIATION, 1922

SUPPLEMENT TO KENTUCKY MEDICAL JOURNAL, OCTOBER, 1922

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EDITORIAL

THE ANNUAL MEETING AT PADUCAH.

Physicians and their wives are expressing especial pleasure that the Annual Meeting of the Kentucky State Medical Association is to be held in Paducah this year. Paducah is the metropolis of the purchase. It is renowned for its cordial hospitality. It is the one town in Kentucky, or anywhere else, so far as we are advised, which contains no knockers except those on its hospitable doors. There will be no difficulty in securing the attendance at this session of all those who have ever been in Paducah, but it is especially urged that those who have not been present at previous meeting there attend this session and have the pleasure of the warm welcome which awaits them. No city in Kentucky has a more active or more progressive medical profession.

The arrangements for the meeting are complete in every detail and it will be much the most profitable session the State Session has ever held to those who take part in its deliberation. The House of Delegates meets on October 16 and on that day there will be special sessions of the various specialists in medicine as will be noted in the program.

The Scientific Sessions open on the morning of October 17 and run through three full days, Tuesday, Wednesday and Thursday. Special Railroad rates have been secured and printed notices in regard to them will be mailed in advance of the meeting to every member. The Committee on Scientific Work has followed the custom of the past five years by arranging to reserve many of the best papers until the last days of the Session and members are urged to remain in Paducah until late on Thursday afternoon.

On Tuesday evening Dr. Dalferres P. Curry Assistant Chief Health Officer of the Panama Canal Zone will deliver the annual oration Dr. Curry needs no introduction to the medical profession of Kentucky. Before the war he was our State Sanitary Engineer and laid the foundation for much of the progress which has been made in municipal health affairs. During and since the war he has been connected in responsible executive positions in public health work in the Canal Zone where the most effective sanitary program in the world has been carried out effectively and economically. Dr. Curry is one of those Kentuckians trained and educated in Kentucky who has attained unusual distinction in our profession and who comes home rich in knowledge and experience to tell us things that would be of benefit to us all.

The Annual Orations by Doctors J. Garland Sherrill and Ernest Bradley will be worthy of the distinguished honor conferred on these two doctors.

In other pages of this issue the expenses of the Association is covered in detail. The report of the Treasurer and the Auditor explained how every cent of its money has been expended. It is of importance that every member familiarize himself with this particular report, and for the delegates to read it carefully so they may be prepared for such action as is necessary.

Credit for the excellence of the program is due to Dr. Philip Barbour, Louisville.

We trust that every physician in Kentucky will help in making this the largest, as we are sure it will be, the best Session we have ever held.

PADUCAH HOTEL ACCOMMODATIONS.

Write or wire Dr. P. H. Stewart, Paducah, Kentucky, for your hotel reservation as soon as possible.

The fact that Dr. Stewart is chairman of the Hotel Committee at Paducah assures every one of abundant accommodations. The hospitality of his generous heart is all inclusive when it comes to the doctors of Kentucky, and you can wire him and start to Paducah with the assurance of a happy meeting.

REDUCED RATES TO PADUCAH.

The annual meeting of the State Association will be held at Paducah October 16-19 inclusive.

A letter just received from Mr. W. H. Howard, the Chairman of the Southeastern Passenger Association, advises that members of the Association and dependent members of their families will be sold return tickets via routes traveled in going to the meeting on the basis of one-half the normal one-way fares. This reduced rate will apply from all points in Kentucky and, also, from Cincinnati, Ohio, and Jellico, Tennessee. The reduced rate tickets will be sold only to members of the organization and members of their families holding certificates of the standard form, signed in ink by our clerk and validated by the Joint City Ticket Agent at Paducah. Selling dates are October 12-18, validation dates are October 18-19 and the last honoring date is October 23.

A post card giving the exact regulation will be mailed to every member of the Association before the meeting and reduced rate notices are on file at all of the ticket offices in Kentucky.

This is the first time since the War that we have had reduced rates and we are gratified at this evidence of return to normal condition, and feel sure that it will help to swell the attendance at the most important annual meeting ever held.

O. R. KIDD, Paducah
President McCracken County Medical Society.

E. R. GOODLOE, Paducah
Secretary McCracken County Medical Society.

SOCIAL AFFAIRS AT PADUCAH.

Paducah is easily the best organized convention town in Kentucky. They know how to do things in an effective way that is appealing: for example, they have arranged a barbecue on Wednesday for the doctors and their ladies at the Country Club. At Paducah a barbecue is a thing apart. Those who have participated in them write stories about them to hand down to their descendants and one of these days Irvin Cobb will write a Constitution and By-Laws of Those Who Have Attended Barbecues in Paducah, which will be one of the most exclusive of organizations. This feature of the meeting alone will make a trip to Paducah worth while and it is hoped that the representatives of the profession in every county of the State will be present in order that the high standard of Paducah barbecues may become popular all over the State.

On Tuesday afternoon, there will be a luncheon for the ladies at the Country Club.

On Wednesday night, the Country Club will, also, give a dance in honor of the visiting doctors and their friends.

Those who arrange to stay over Thursday evening will be entertained at a special picture show.

The Committee on Entertainment, of which Dr. Horace T. Rivers is chairman, have written asking what else they can do.

Members of the Association who go to Paducah will not only attend the best scientific session we have ever had, but they will receive a cordial Kentucky welcome that will be a pleasant memory throughout their lives.

THE STATE MEDICAL GOLF TOURNAMENT.

The distinguished and urbane Councilor for the Tenth District, Dr. R. Julian Estill, has donated an Annual Cup for a Golf Tournament in connection with the sessions of the Association.

The first tournament will be held at Paducah on the day preceding the opening session and entrants are requested to send their names in to Dr. Lillian H. South, 532 West Main St., Louisville, as soon as possible. Handicaps will be those of their home clubs.

We hope that this feature of the Annual meeting will add interest to them.

52 Eastover Ct. Louisville, Ky., Sept. 1922.

PADUCAH COMMITTEES.

The McCracken County Medical Society of which Dr. O. R. Kidd is the President, Dr. E. R. Goodloe, the Secretary and P. H. Stewart, the Treasurer, has announced the appointment of the following committees:

Committee on Arrangements: Drs. J. T. Reddick, H. P. Linn and V. L. Powell.

Committee on Entertainment: Drs. H. T. Rivers, P. H. Stewart and Frank Boyd.

Committee on Hotels: Drs. W. J. Bass, E. B. Willingham and J. B. Acree.

Reception Committee: Drs. C. E. Purcell, Chairman, and the membership of the Mc-

D. W. GOADER, Hodgersville
Vice-President Kentucky State Medical Association,

JUANETA M. JENNINGS, Lynch, Ky.
Vice-President Kentucky State Medical Association.

DR. ALEXANDER R. CRAIG.

Official announcement from Chicago brings the sad information that Dr. Alexander R. Craig, the Secretary of the American Medical Association is dead.

For many years, Dr. Craig has been one of the foremost figures in American medicine. In the earlier days of the reorganization of the National Association he was Chairman of the Pennsylvania delegation in the House of Delegates and his quiet, polite, persistent, methodical efficiency secured for him the confidence of the membership; and, when Dr. Simmons found the combined duties of Secretary and General Manager too arduous, it seemed quite natural that Dr. Craig should have been unanimously selected as the Secretary of the Association. He was a Quaker by birth and rearing and was one of the gentlest and kindliest of men. He has been present at almost every session of the Kentucky State Medical Association since his elevation to the Secretaryship and has given it much valuable advice and secured the love and affection of its members.

Dr. Craig was an unusual man. He was a loyal, faithful friend, a splendid representative—not only of the great profession of Pennsylvania, but to that of America—and those who knew and loved him will look forward to find him efficiently, modestly carrying on "Over There."

PADUCAH.

Paducah, the pride of the purchase, was known as Pekin until 1827, when George William Clark, youngest brother of George Rogers Clark and a member of the Lewis and Clark expedition to the great North West, laid out the town and changed the name to Paducah, for an Indian chief who had befriended him in his explorations.

Though less than a century has passed since then, the growth of the city has been marvelous.

Geographically, Paducah has no peer, situated on the Ohio River at the mouth of the Tennessee, twelve miles from the Cumberland and fifty from the Mississippi, she enjoys daily steamer service to each, while four lines of the Illinois Central, and the C. B. & Q. and the N. C. & St. L. Railways give twenty-four daily passenger trains—and the Louisville-Paducah the Jefferson Davis and the Logan Highways connect us with a vast territory. We have radiating out of Paducah a system of hard surfaced roads connecting all the counties west of the Tennessee River, and when the Federal Highway from Paducah to Louisville and from Smithland to Earlington and from Paducah to Hopkinsville are completed, the entire western part of the state will be easily accessible for all automobile traffic, as every branch of the primary system of highways and the Federal Highway System in Kentucky lead directly into Paducah.

Our population of about 30,000 consists of 85 per cent white, 15 per cent colored with a very few foreigners.

ELK'S CLUB
Scientific Session of Kentucky State Medical Association Will be Held Here.

Paducah has several miles of sanitary sewers and is now engaged in building additional sewers for which a $600,000 bond issue was voted.

The purity of our water meets all the requirements of the United States Public Health Service and trains and steamers are supplied here with drinking water.

Our hospital faculties would do credit to a large city. The Riverside Hospital, owned and operated by the city, cares for private and charity patients. With ninety available beds, and rooms for about twenty-five additional, a new nurses' home, with two well equipped operating rooms, and the most modern facilities for sterilization and X-Ray service, with its staff of capable nurses, and staff of physicians and surgeons of national note it is one of Paducah's greatest assets.

The Illinois Central Hospital, recently built by the railroad is one of the most modern and completely equipped hospitals in America. It is maintained primarily for service to the employes of the Illinois Central Railroad who numbers more than 1,500 in Paducah, and over 2,000 on the division which this hospital serves. It is also available for private patients, with its 100 beds. Wits its three opearting rooms, refrigerating system, a splendid staff of nurses, physicians and surgeons, it renders splendid service.

The Ewart Purcell Isolation Hospital, the only one in the state except at Louisville, is modern in every respect. With its ten rooms, four wards, operating room, diet kitchen, all of which are memorial rooms, and a capacity for twenty-five patients, and many more in an emergency, it is filling a long felt need in the treatment of infectious and contagious diseases.

Just outside the City limits is a sanatarium for the treatment of smallpox, with a capacity of twenty beds. Under the auspices of the Public Health League a corps of competent nurses make daily visits to homes where medical attention and nursing are needed.

Both the Riverside Hospital and Illinois Central have excellent laboratory services, expert technicians, while various private laboratories are ably conducted by many physicians.

Paducah is the center of a splendid Dairy country, and in the City Consumers Co. has one of the largest Milk Purifying Plants in the state. Here all milk is pasteurized and rendered free from bacteria. Our milk inspection service includes all soda fountains, ice cream makers and all other dealers in milk.

Expert testing of all cattle in McCracken

County, as well as inspection by our efficient meat and milk inspector assures Paducah of a wholesome meat and milk supply. One of the best markets in the South of both animal and vegetable products is the City Market, where fresh foods of every variety are sold daily.

Paducah's modern motorized Fire Department is one of our most valuable assets.

The modern Street Car service of more than twenty miles reaches all parts of the city.

The Retail Stores carry the best in all lines and make Paducah the Mecca of thousands of shoppers annually. While we have the largest wholesale market in Western Kentucky, 2 wholesale drug househ, 2 wholesale Dry Goods and Notions, 4 Produce Houses, and 9 Wholesale Grocery Houses.

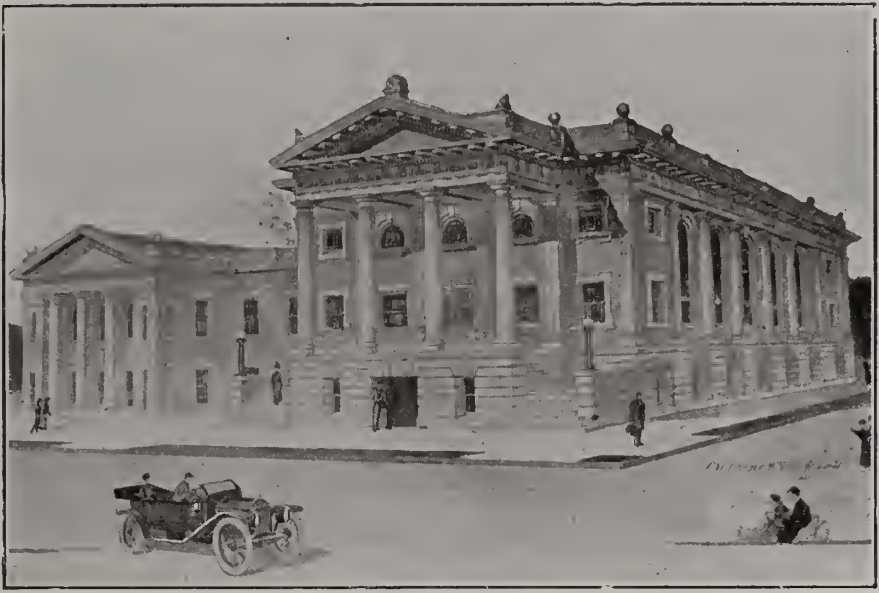
Paducah enjoys the distinction of being the second largest manufacturing point in Kentucky, and the second largest Tobacco Market in the world.

Among our ninety varied industries are shoes, cooperage, fruit packing, veneers, cigars, smoking and chewing tobacco, hosiery, textile machinery, boilers, machines, pumps, rope, cordage, mops, harness and saddlery, brick, tile, raincoats and children's clothing. Ranking fifth in population of the state according to the last Government Censns of Kentucky, Paducah ranks second in number of people employed in industry.

Our Board of Trade composed of the greater per cent of our Business and Professional men enjoys an enviable record, of ten years achievement, with greater visions yet in mind.

The office buildings are modern and well equipped and would reflect credit on any city.

The electric plant serves people within a



BAPTIST CHURCH
Commercial Exhibits and Registration Department Will be Held Here.

VIEW OF RIVER FRONT

radius of 20 miles.

The several banks each with a large capitalized stock are sources of strength to our commercial life.

The newspapers reaching 65,000 persons are factors of education and uplift.

Paducah's Public School System is being constantly improved. We boast of one of the best Junior High Schools in the state, with an enrollment of more than 500. While the Senior High School housed in the new Augusta Tilghman with its 25 class rooms, library, Domestic Science, Laboratory, Scientific Laboratory and Manual Mailing Department, has enrolled more than 600. This building was erected by means of voting bonds of $250,000 and its well equipped Gymnasium was made possible by voluntary subscription of $2,500. tary subscription of $2,500.

The Palmer Hotel

Rooms without Bath $3.50 up | With Private Bath $4.00 up

AMERICAN PLAN

Paducah, Ky.

Quincy B. Love W. H. McClelland

PALMER HOUSE
Headquarters of the Kentucky State Medical Association

One of our eight Grammar Schools has a Nutrition Class where twenty boys and girls found upon examination to be under weight and under height are weighed each week and the improvement since drinking a pint of milk a day is noted.

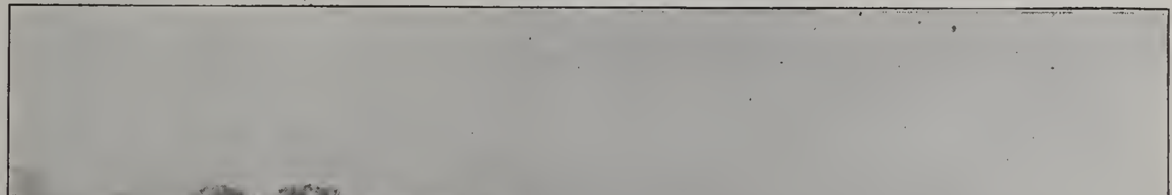
Another interesting and instructive department of our schools is the retail selling, while classes in sociology find great interest in our hospitals, factories, home of the friendless. I C. shops and the Joseph L. Friedman Settlement House, where many branches of vocational training, (cooking, sewing, carpentry, wearing and basketry, are carried on.) We also have several splendid private and Parochial schools.

The Business Colleges, Schools of Music, vocal and instrumental, instruction in all branches of art taught by most efficient trained under noted artists.

The Carnegie Library of 2,000 bound periodicals, 20,000 volumes covering philosophy, education, sociology, physiology, general sci-

VIEW OF RIVER FRONT

ST. MARY'S ACADEMY



WESTERN KENTUCKY COAL BARGES

Paducah Ky.
St. Mary's Academy
Carnegie Library

ince, useful arts, fine arts, literary, poetry, essays, orations, biography, travel, fiction and ancient Medievial and modern history, and its nucleus of an historical museum and works of art, is the pride of Paducah.

The boy scouts rank high; our bench and bar boasts of some of the greatest intellects of our state and nation. Our 22 churches of every denomination with their cultured, spiritual pastors are exerting an influence that can not be measured.

The various clubs—Rotary, Lions, among the men. Business and Professional, Women's Club, Mother's Hospital League, Delphic, Magazine, Bay View, Kalosophic, Mentor, Bay View, Woman's Club, United Daughters of Confederacy, Paducah and Fort Jefferson, Daughters of American Revolution, Lucy Jefferson Children of American Revolution are sources of culture and altruistic endeavor and accomplishments. The Woman's Club owns its own home, including library, auditorium, dining room, and kitchen, carrying on its own work under 12 departments with a membership of 400.

The Country Club and Theatres also add to the intellectual and social life of our city.

Paducah has many places of historical interest viz., Owens Island, (opposite the city) where George Rogers Clark landed on his way from Louisville to the North West Territory, where with only a small force he added to our country an area almost as large as the Thirteen Original Colonies.

The home of the Hon. Linn Boyd for four years speaker of the House of Representatives, site of Old Fort Anderson, scenes of Forest's Raid, and the location of the Submarine Cable built by Captain Jack Sleeth, headquarters of Gen. Wallace during the Civil War, place where Grant read his proclamation, the Confederate Statute of General Loyd Tilghman, birth place of Irvin Cobb, America's foremost humorist, Drinking Fountain, by Lorado Taft. This last represents an Indian looking out over the surrounding country, and is affectionately called "Old Paduke" in honor of the Indian chief whose name our proud city boasts.

In every profession and business our men measure up with the foremost and most progressive. The women are cultured, progressive and interested in all good work. The homes are centers of hospitality and no one ever feels a stranger within our gates.

EWART PURCELL ISOLATION HOSPITAL

PADUCAH VENEREAL DISEASE CONTROL CLINIC.

On the opposite page is shown the building in Paducah, from which the McCracken County Health and Welfare League carry on their activities for the betterment of public health in that city.

Miss Grace, James and Miss Edna Stroller, Public Health Nurses, have been doing some splendid work under the auspices of the Health and Welfare League for the past two years. Through the courtesy of the officers of this organization and the superintendent of the building, Mr. D. K. McNish, the Bureau Veneral Diseases State Board of Health have been permitted to join their activities with those of the McCracken County Health and Welfare League for venereal disease control in Paducah.

The city of Paducah made a substantial appropriation in July for the purpose of carrying on this phase of the work for this year, which appropriation was suplemented by the State Board of Health.

The State Board of Health, as well as the city of Paducah, were very fortunate in getting Dr. S. J. Chambers to take charge of Venereal disease control work in this clinic. The work has grown under his direction to such proportions that one of the best venereal clinics in the state is now beng conducted there, in conjunction with the McCracken County Health and Welfare League's activities. Mr. C. T. Votaw, who has had a large experience in the Army and Navy and is doing follow-up work, has done one of the most splendid pieces of work in this connection that has been done in the state, and the city is to be congratulated on securing two such efficient workers as found in Dr. Chambers and Mr. Votaw. At this time they are treating more than two hundred cases of venereal infection. It is believed that it will be worth the time of any physician attending the state meeting in October to visit Dr. Chamber's clinic in this building at Sixth and Broadway. It is planned to hold several venereal disease clinics during this time for the benefit of the visiting physicians.

MISS GRACE JAMES AND MISS EDNA STROOLER
Paducah Public Health Nurses

We are now conducting twenty-five free venereal disease clinics in cooperation with the U. S. Public Health Service. These clinics are distributed at convenient points over the state, and are being very largely attended by indigent persons infected with venereal diseases. We are also cooperating with the Bureau of Child Hygiene of the State Board of Health, and are therefore able to administer scientific treatment at these clinics to expectant mothers who are infected with syphilis and are too poor to pay for such treatment.

We are also glad to note that we are meeting more and more with the cooperation of physicians in venereal disease control in the vicinity of these clinics. The physicans are beginning to realize that the educational propaganda which eminate from the activities of these clinics induces people who are infected with venereal disease and who are able to pay a physician for continued, adenaqte and scientific treatment of these diseases to take such treatment.

Statistics gathered indicate that heretofore only approximately 8% of all persons infected with venereal disease seek treatment at the hands of a physician. They have either gone without treatment or purchased some nostrum at the corner drug store. Reports from physicians in vicinities where these clinics are conducted show more and more that people who are able to pay are seeking treatment at the hands of their family physicians.

When it was first decided to start these free venereal disease clinics throughout the state, it was urged by some physicians that such activities on the part of the State Board of Health and the U. S. Public Health Service, would deprive them of the remuneration due them for the treatment of these cases; experience has proven the contrary to this opinion to be true. Physicians find that they are treating more venereal disease now than before these clinics were established. The educational factor has been so outstanding as to give the layman a better understanding of the long period of time necessary and the scientific skill for the proper treatment of venereal disease. We believe that with the proper co-operation of the physicians of the state in a comparatively short time a large percentage of the people who become infected with venereal disease will seek scientific treatment for these maladies.

In view of the foregoing facts, it can readily be seen that the activities of the Bureau Venereal Diseases is destined to enhance the income of every physician who treats venereal diseases in the state.

McCRACKEN COUNTY HEALTH AND WELFARE LEAGUE.

DR. J. S. CHAMBERS
Director Venereal Disease Clinic Paducah

MR. C. T. VOTAW
Sanitary Inspector Paducah

CHATTANOOGA MEETING OF THE SOUTHERN MEDICAL ASSOCIATION.

The Southern Medical Association will hold its sixteenth annual meeting in its birth city—Chattanooga, Tennessee, "The Dynamo of Dixie," Monday, Tuesday, Wednesday and Thursday, November 13-16, 1922. Dr. Seale Harris, Birmingham, Alabama, President.

This meeting will be made up of eighteen sections and conjoint meetings as follows: Section on Medicine, Section on Pediatrics, Section on Neurology and Psychiatry, Southern Gastro-Enterological Association, Section on Radiology, Section on Dermatology, Section on Surgery, Southern States Association of Railway Surgeons, Section on Urology, Section on Orthopedic Surgery, Section on Obstetrics, Section on Eye, Ear, Nose and Throat, Section on Public Health, National Malaria Committee, Conference of Malaria Field Workers, Southern Hospital Association, Conference on Medical Education and Southern Association of Anesthetists. In these meetings every phase of medicine and surgery will be treated. The programs are unusually fine this year.

Dr. E. D. Wise, City Health Officer of Chattanooga, will deliver the Address of Welcome which will be responded to in behalf of the Southern Medical Association by Dr. W. S. Leathers, State Health Officer of Mississippi, Jackson, Mississippi. Dr. C. C. Bass, Dean of Tulane Medical College, New Orleans, will deliver the Oration on Medicine; Dr. Hubert A. Royster, Raleigh, North Carolina, the Oration on Surgery; and Dr. S. W. Welch, State Health Officer of Alabama, Montgomery, Alabama, the Oration on Public Health.

Of unusual interest will be the joint dinner session of the Section on Surgery and the Section on Radiology Tuesday night. Dr. George W. Crile, Cleveland, Ohio, will represent the Section on Surgery, and Dr. George W. Holmes, Massachusetts General Hospital, Boston, the Section on Radiology. All physicians and surgeons are cordially invited to this dinner session.

Entertainments include a President's reception with dance on Tuesday night and a dance and get-together meeting on Wednesday night. On Tuesday and Wednesday elaborate entertainments have been provided for the wives of the physicians, including sight-seeing trips over the historic points of interest, luncheon at Signal Mountain Inn, theatre parties, etc. The Chattanooga Committee are anxious for a large attendance of ladies.

For those who play golf, tournaments are being arranged. Chattanooga has several golf courses.

Scientific exhibits bid fair to be of unusual interest. In the health exhibits malaria control work will be featured. In connection with the scientific exhibits there is expected to be a moving picture theatre at which scientific films will be featured all during the days of the meeting.

Chattanooga excels in beautful scenery and in points of historic interest. Lookout Mountain, Signal Mountain, Missionary Ridge and the historic battle fields alone are worth a trip to Chattanooga.

The Hotel Committee promise comfortable accommodations for all who attend.

Special reduced railroad rates have been granted by all railroads on the certificate plan. The members of the Association will receive without applying for them a certificate entitling them to reduced rates. Any doctor who is a member of his state and county medical society, although not a member of the Southern Medical Association, who desires to attend this meeting can have the benefit of these reduced rates by requesting a certificate from the Association office.

TWO MEETINGS OF INTEREST TO ANESTHETISTS.

The Southern Association of Anesthetists will hold its organization meeting at Chattanooga in conjunction with the Southern Medical Association, November 14 and 15. A successful meeting is assured and an interesting program is in preparation. For details and particulars write Dr. W. Hamilton Long, Secretary, Louisville, Ky.

A Congress of Anesthetists will be held at Columbus, October 20, November 1. This will be the first large gathering of Anesthetists held independently and is a joint meeting of held independently and is a joint meeting the Interstate Association of Anesthetists, The National Anesthesia Research Society and the New York Society of Anesthetists. Some Canadian and English Anesthetists will be in attendance and present papers giving the Congress an International flavor. For program and particulars write to F. H. McMechan, Avon Lake, Ohio.

A KENTUCKY SURGEON HONORED.

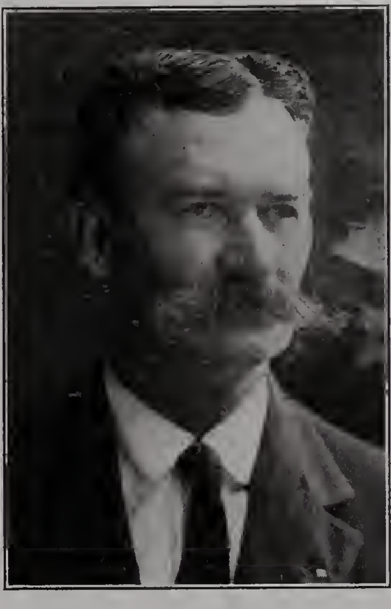
We are reprinting in this issue a translation from the Spanish Edition of the *Journal of the American Medical Association* an article by Dr. Guy Aud, of Louisville.

It is a distinct honor for the profession of Kentucky that Dr. Aud's article was considered of sufficient interest and value to be translated in Spanish for the benefit of our Latin-American colleagues and the JOURNAL is glad to re-translate the article for its value to the profession of Kentucky.

A BOQUET.

My dear Doctor: A single rose is of a great deal more value to the living than a bouquet of flowers to the dead—In my humble opinion the Kentucky Medical Journal is by far the best Medical Journal published in the U. S. A. To confirm this it is only necessary to compare the September issue with that of any other Medical Journal published. As a physician and Kentuckian I am proud of our Journal; and congratulate the profession in the possession of such a Journal; and their wisdom in their selection of the Editor. For the education of the people, and that they may realize the gerat work of Sanitation and preventive Medicine, I am of opinion that it would be well to reproduce in our Journal an article that appeared in the September 1922 issue of the National Geographic Magazine, "Map-Changing Medicine" by William Joseph Sholwalter.

Very respectfully,
R. H. C. RHEA.



C. W. ROGERS, Rineyville
Vice President Kentucky State Medical Association

SCIENTIFIC EDITORIAL

DIABETES.

Only a few years ago the discovery of sugar in the urine was promptly followed by an effort on the part of the conscientous physician to withdraw from the patient's diet all carbohydrate foods. At this time the mortality from diabetics in one of the best administered general hospitals in the country was 28 per cent. If it was not higher than this in private practice the explanation probably lay in the fact that the patient, inspired by the subconscious urge of a chemical hand, failed to follow closely the doctor's instructions as regards diet. The fact that during this period many advertised "starch-free" diabetic foods were used without any careful investigation of their real starch content probably also saved many patients from fatal coma through misrepresentation on the label of the package.

At the Southern Medical Association meeting in October 1921, Dr. Joslin, reported the mortality from diabetes in the Massachusetts General Hospital for the year 1920, as 2 percent. This very striking change from 28 per cent to 2 per cent has taken place in that institution in six short years, and in spite of many statements to the contrary it may probably be assumed that the character, duration, and severity of the cases when first seen has not greatly changed. The explanation, then, must lie in the only factor which has changed materially, namely the treatment.

We know now that the cause of the frequent occurrence of coma upon the initiation of treatment in former years lay in the complete withdrawal of carbohydrates and the proportionate increase in fats, since acidosis is the inevitable result of a diet containing a large excess of fats, without sufficient carbohydrates to accomplish their combustion. The key note of the accepted method of dieting diabetics today is to adapt the patient's weight to his capacity for utilizing food. Thus, undernutrition becomes the important factor in most cases. It is only from the general adoption of the policy of undernutrition, after the plan of Allen, in 1914 that the improvement, one might say the revolution, in diabetic statistics during the past eight years dates.

A diet strictly limited as to quantity, going as a rule considerably below the supposed caloric requirements for a normal individual of the same weight, and retaining in so far as the patient's carbohydrates tolerance permits, the normal relationship between the three basic food elements, constitutes the foundation of every sound plan of diabetic treatment today. The remarkable results obtained by Newburg and Marsh in a series of cases upon their high fat diet become understandable in the light of Woodyatt's work showing that under some conditions 58 per cent of all the protein and 10 per cent of all the fat in a diabetic diet may be converted into, and utilized as glucose, thus altering in a marked way the apparent proportion of the three elements in the diet and furnishing an additional supply of glucose with which the excess fats may be burned.

The latest and in some ways the most promising addition to the treatment of its disorder is the use of the extract of the Islands of Langerhans of the pancreas to make up an apparent deficiency in internal secretion from this tissue. Begun by McLeod, of Toronto, experimental work with this substance, is being carried out by several investigators in various parts of the country. To take the most hopeful view from results being achieved at the present time, it seems not impossible that this substance, called Insulin, may in time come to possess an importance in the treatment of diabetes similar to that enjoyed by Thyroid extract in Myxedema and Cretinism. It seems not too much to hope that it's use may enable otherwise hopeless cases to utilize sufficient quantities of food to maintain body weight and strength. It need scarcely be added that at the present time no other drug has any place in the routine handling of Diabetes.

C. D. Dowden and C. W. Enfield.

A PLEA FOR EARLIER SURGICAL INTERRVENTION IN OBSCURE INTERA-ABDOMINAL INJURIES

Insofar as this contribution is concerned, obscure intra-abdominal injuries will be considered those inflicted by non-penetrating external traumatic agencies and of sufficient violence to cause visceral damage without the production of positively indicative extra-abdominal signs. The discussion of penetrating abdominal wounds will be reserved for future time.

Broadly speaking there are three types of external violence, either of which may produce serious internal injury with meager external signs: (a) precussive, (b) compressive, and (c) concussive. Direct percussive or compressive trauma will account for the greater number of intra-abdominal injuries. Indirect, concussive, or transmitted violence sufficiently severe to cause extensive visceral damage is uncommon.

Evidently the fact is not generally appreciated by the average practitioner of medicine that any solid or hollow intra-abdominal viscus may be lacerated, ruptured, separated from its attachments or otherwise injured, or its blood or nerve supply be inhibited, by external trauma of either variety mentioned without the production of visible surface evidence; thus the liver, spleen, kidneys, pancreas; urinary bladder, large and small intestine, omentum, mesentery, etc, may be seriously damaged. The viscera, anatomically more deeply situated, usually escape except accompanying severe compressive trauma. "The damage may be direct and immediate to the organ itself, or it may be indirectly caused by injury to the blood supply of the viscera affected; it may range from a slight bruising or abrasion of the peritoneal covering of the part to an extensive laceration of the substance or even more or less complete disintegration of the whole of the viscera involved."

Early diagnosis of visceral damage accompanying extra-abdominal trauma is a consummation devoutly to be wished but is sometimes impossible (except in urinary bladder or renal injuries) despite the experience and erudition of the attendant. There may be present no early pathognomonic symptoms of internal injury nor is the severity of the clinical signs always indicative. The classical text-book syndrome of pain, shock and vomiting may be early noted in external trauma without internal injury or may be entirely absent where extensive visceral damage has occurred. Both local and general manifestations may be noted immediately or be delayed for hours or days.

"Cases have been reported in which mistaken diagnoses, based on alarming symptoms, have led to unnecessary operations; again, the resultant injury often bears no relation to the degree of violence that produced it. Severe visceral lesions may follow slight accidents, and *vice versa*. For these reasons any symptoms no matter how slight referable to the abdomen should be given due weight in any case in which the patient has been subjected to external violence. In no other class of cases is an early diagnosis so necessary; in most instances it is life-saving; a delayed diagnosis nearly always means a fatal termination."

Doubtless every practitioner of medicine is familiar with the ancient advice to await sumptoms following extra-abdominal trauma before resorting to surgical treatment. For obvious reasons this plan is often fraught with extreme clinical dangers. After severe extra-abdominal trauma, to await symptoms sufficient for a positive diagnosis of internal injury means a preventable fatality. One must not wait for the appearance of rigidity, distension and vomiting; when these are evident, operation succeeds only by a miracle. In acute abdominal emergencies, especially the traumatic, the benefit of doubt means radicalism. Make the diagnosis early and operate immediately. If the surgeon ever needs to be prompt in the application of operative measures for the relief of acute abdominal symptoms, he must be prompt when those symptoms follow violence to the abdominal wall. (Richardson).

It must be admitted that as the symptoms of visceral injury are so variable and that none is constant the early diagnosis in most instances is a matter of extreme difficulty; and "for these reasons a diagnosis of suspicion or presumption should be adhered to until the element of internal injury can be positively eliminated." It may be stated as a pertinent surgical axiom that where the abdominal wall has been seriously traumatized "the preponderating presumptive evidence" of possible visceral damage warrants exploratory celiotomy.

The general symptoms of visceral (especially intestinal) rupture (Soederlund) consist of shock, quickened pulse rate, and increased temperature and vomiting; but these are of little diagnostic value except in connection with local signs, such as pain, local tenderness, local muscular rigidity and shallow abdominal respiration and lessened liver dulness. The abdomen should be carefully examined frequently for the development of pain (or the intensification of existing pain); also for tenderness on localized abdominal or rectal pressure. When, in addition to the general symptoms the local findings are positive and there is dulness over the injured region, the indications point to rupture. "Expectance should be limited to one hour; if at the end of that time the patient's condition has not changed, he should be operated upon immediately."

The suggestion is important that in attempted diagnosis of internal injury "shock alone cannot be the indicator; if the abdomen becomes rigid and tender; if there is repeated vomiting, exploratory incision is imperative."

It seems needless to state that there is no medical treatment of intra- abdominal injuries except insofar as it relates to careful and continuous observation of the patient to note the presence or absence of local and general symptoms. The use of compresses, local applications, the internal administration of drugs, etc., is merely courting disaster.

The main object of this contribution is to emphasize the necessity of early surgical intervention where the abdomen has been subjected to inordinate external violence provided there is even presumptive evidence of visceral damage. The symptoms are inconstant and may be misleading, and it is distinctly inadvisable to await the "classical" clinical picture before applying surgical measures. Where extensive visceral damage has occurred the mortality under expectant management is nearly one hundred per cent. Certainly such a tremendous mortality can be markedly reduced by the early invocation of surgery.

It seems unnecessary to emphasize the fact that carefully exploratory celiotomy in a well-equipped hospital is practically devoid of clinical risk, and following external abdominal violence "the greatest good to the largest number" should guide the surgeon in his attitude toward his patient. Prompt exploration represents an ideal "safety first" measure, whereas procrastination usually spells disaster.

CHARLES A. VANCE.

THE MIDDLE TURBINATE.

The middle turbinate bone might well be called the chief criminal in the pathology of the head. It occupies a strategic position at the opening of the maxilary, frontal and anterior ethmoidial cells. Any deformity of the bone or any considerable deviation of the septum is likely to close the opening of those cells and cause a set of symptoms which are very annoying to the patient. We have long known what the results of retained pus in these sinuses are. It is only in comparatively recent years that we have come to understand that the closing of the opening to those cells, even in the absence of pus, may cause serious trouble. Whether it is the pressure of the bone on the nerves or the negative pressure caused by the absorption of the oxygen from the closed cell which causes the trouble we do not know. It may be both acting together. At any rate the symptoms are very characteristic. There is frontal pain, usually more on one side than on the other. It is usually increased by using the eyes but it is present whether the eyes are being used for close work or not. The pain is usually worse in the morning and for that reason is popularly known as sun pain. There is tenderness on pressure at the inner upper angle of the orbit at about the location of the pully of the superior oblique muscle. This too is almost always worse on one side. If questioned the patient will say that the pain is of a dull character like a heavy pressure. It is worse on stooping and is made much worse by taking cold. After eating the face sometimes becomes flushed though this is not a very common symptom. The most characteristic thing about these patients is their inability to concentrate on any mental work. This symptom is sometimes the first to be noticed, especially in students, and the headaches may be of secondary importance. Such patients will state that for a rather definite length of time they have not been able to study effectively. On reading a page they will forget what is at the top before the bottom is reached. It is self evident that if the symptoms are caused by pressure they will disappear if the pressure is removed. This does not mean that the middle turbinate must be removed in every case. In fact it need not be removed in the majority of cases. Where there is plenty of room between the septum and the turbinate the bone can be simply broken over toward the septum and this will give an ample opening to the sinuses. It is almost miraculous to see the symptoms disappear after this simple procedure. If because of the size of the bone or the shape of the septum it is impossble to get sufficient space in this way it will be necessary to remove the bone or at least its anterior end. If the trouble is caused by a marked deviation of the septum pressing the turbinate over it may be necessary to do a submucous resection and then break over the middle turbinate or remove it as the case demands. The mere breaking over of the turbinate gives relief in such a large percent of cases that this simple procedure should be resorted to whenever, from the above symptoms, we are even suspicious of a pressure headache, for it is devoid of danger, can be done under cocaine without pain, hemorrhage or loss of time, and often gives the long suffering patient most gratifying relief.

R. H. COWLEY.

Intra-Abdominal Tuberculosis in Infancy.—One hundred and twenty cases were analyzed by Mixter. The miliary type of tuberculosis is usually seen in infancy. The ascitic and plastic types occur most frequently between the ages of two and eight, while mesenteric adenitis is more often found in older children. A family history of tuberculosis or known exposure, was elicited in only twelve of the 120 cases. This point is suggestive evidence to Mixter that tuberculous peritonitis is one of the most frequent varieties dependent on the bovine bacillus, as is also the fact that the relative number of such cases has apparently decreased during the last

OFFICIAL ANNOUNCEMENTS

PROGRAM FOR KENTUCKY STATE MEDICAL ASSOCIATION.

PADUCAH, OCTOBER 16, 17, 18, 19, 1922.

TUESDAY, A. M. OCTOBER 17.

Call to Order by the President—Dr. J. A. Stucky, Lexington.

Invocation.

Address of Welcome . . Hon. Charles K. Wheeler, Paducah

Response to Address of Welcome—Dr. C. C. Carroll, White Mills.

Installation of President.

Address of the President—Dr. Louis Frank, Louisville.

Memorial Services for Dr. J. N. McCormack.

1. Dr. McCormack as a Man—Dr. J. A. Stucky, Lexington.
2. Dr. McCormack in His Relation to the Medical Profession—Dr. D. M. Griffith, Owensboro.
3. Dr. McCormack in His Relation to the General Public—Hon. J. C. W. Beckham, Louisville.
4. Dr McCormack in His Relation to the American Medical Association—Dr. C. A. L. Reed, Cincinnati, O.

Discussion by Dr. D. W. Griffith, Hodgensville.

Oration in Surgery by Dr. Garland Sherrill, Louisville.

TUESDAY P. M.

1. Diagnosis and Treatment of Broncho Pneumonia—Dr. J. H. Pritchett, Louisville.
2. Diagnosis and Treatment of Lobar Pneumonia—Dr. Frank Fleischaker, Louisville.
3. Complications of Pneumonia—Dr. W. B. Neel, Henderson.
4. Surgical Treatment of Pleurisy and Empyema—Dr. John Price, Louisville.
5. Hill-Billy Surgery—Dr. J. G. Carpenter, Stanford.
6. The Dead Line—Dr. Charles K. Beck, Louisville.

TUESDAY P. M.

Public Address by Dr. D. P. Curry Assistant Chief Health Officer, Canal Zone, Panama.

WEDNESDAY A.M., OCTOBER 18, 1922.

1. Mobilization of Stiff Joints—Dr. Willis C. Campbell, Memphis, Tenn.
2. Arthroplasty with Special Reference to the Elbow,—Dr. J. S. Chambers, Paducah.
3. Fermentative Diarrhoea—Dr. James W. Bruce, Louisville.
4. Bacteriology and Treatment of Disease of Colon—(Illustrated by lantern slides)—Dr. Curran Pope, Louisville.
5. Relation of Rectum to Digestive Disorders—Dr. Bernard Asman, Louisville.
6. Acute Obstruction of Bowel—Dr. H. T. Rivers, Paducah.
7. Resection of the Intestine—Dr. E. S. Allen, Louisville.

Oration in Medicine by Dr. E. B. Bradley, Lexington.

WEDNESDAY, P.M.

1. Physiology of the Ductless Gland—Dr. Geo. Hays, Louisville.
2. Possibilities and Limitations of Endocrine Therapy—Dr. Wm. Englebach, St. Louis, Mo.
3. Thyroid and Thymus from the Medical Standpoint—Dr. Julian Estill, Lexington.
4. Surgery of the Thyroid—Dr. B. F. Robinson, Berea. Discussion—Dr. Wallace Frank, Louisville.
5. Arterio Sclerosis and High Blood Pressure—Dr. J. M. Morris, Louisville.
6. Recent Researches in Blood Pressure—Dr. F. Askenstedt, Louisville.

THURSDAY, A. M.

1. Abortion—Criminal and Inevitable—Dr. N. W. Moore, Cynthiana.
2. Abortion Therapeutic—Dr. E. C. Redmon, Lexington.
3. Sacral Anesthesia in Obstetrics—Dr. S. P. Oldham, Owensboro.
4. Juvenile Tuberculosis—Illustrated by lantern slides—Dr. Oscar Miller, Louisville, Waverly Hill Sanitarium.
5. Surgical Diagnosis and Treatment of Hydrocephalus—Dr. B. F. Zimmerman, Louisville.
6. Local and Regional Anesthesia in Major Surgery—Dr. Walter Hume, Louisville.

THURSDAY P.M.

1. Corrective Rhinoplasty—Illustrated with lantern slides—Dr. Guy Aud, Louisville.
2. Blastomycosis—Illustrated with lantern slides—Dr. Stuart Graves, City Hospital, Louisville.
3. County Diagnostic Laboratories—Dr. Vernon R. Jones, Shelbyville.

Value of the Cystoscope in Diseases of the Upper Urinary Tract—Dr. C. G. Hoffman, Louisville.

PROGRAM EYE AND EAR SECTION—KENTUCKY STATE MEDICAL ASSOCIATION

Call to order, 10 a. m., sharp, Monday, October 16, 1922.

Reading of minutes.

Report of Officers and Council.

Election of New Members.
Unfinished Business.
Election of Officers.
New Business.
Scientific **Program.**
Exhibition of New Instruments.
Pathological Specimens, etc.
Exhibition of Clinical Cases.

PAPERS.

Some Frequently Overlooked Causes of Headaches—Dr. J. A. Stucky, Lexington.

Causes of Blindness in Kentucky School of Blind—Dr. I. A. Lederman, Louisville.

Complications of Cataract Extraction and Their Treatment—Sub-conjunctival Dislocation of Crystalline Lens with report of three cases—Dr. T. L. Bailey, Madisonville.

PROGRAM OF PEDIATRIC SECTION—KENTUCKY STATE MEDICAL ASSOCIATION

"Eczema"—Dr. Philip F. Barbour, Louisville.

"Congential Syphilis of the Nervous System, With Report of a Case"—Dr. Frederic G. Speidel, Louisville.

"Pyelitis in Children"—Dr. C. E. Kidd, Paducah.

"Lactic Acid Milk in Infant Feeding"—Dr. Josephine Hunt, Lexington.

OFFICIAL CALL.

The Seventy-Second Annual Meeting of the Kentucky State Medical Association to be Held in Paducah, October 16, 17, 18 and 19, 1922

To the Officers and Members of the Component County Societies of the Kentucky State Medical Association.

The Seventy-Second Annual Meeting of the Kentucky State Medical Association will convene in the Auditorium of the Elk's Club, Paducah, on Monday, Tuesday, Wednesday and Thursday, October 16, 17, 18 and 19, 1922.

THE HOUSE OF DELEGATES

The House of Delegates of the Kentucky State Medical Association will convene in the Baptist Church, Paducah, at 2 p.m., on Monday, October 16, 1922.

FIRST GENERAL SESSION

The First General Session, which constitutes the opening exercises of the scientific functions of the Association will be held in the auditorium, Elk's Club, Paducah, at 9 a.m., Tuesday, October 17, 1922.

THE COUNCIL

The Council will convene at the Palmer Hotel, Paducah, October 16, at 10:30 a. m.

THE REGISTRATION DEPARTMENT

The Registration Department will be opened in the Exhibit Hall, Baptist Church, Paducah, from 10 a.m., to 6 p.m., on Monday October 16, 1922; from 8 a.m., to 6 p.m., Tuesday and Wednesday, October 17 and 18, and from 8 a.m., to 12 m. on Thursday, October 20.

COUNCILOR DISTRICTS

FIRST DISTRICT

W. W. RICHMOND CLINTON, COUNCILOR

Ballard
Caldwell
Calloway
Carlisle
Fulton
Graves
Hickman
Livingston
Lyon
Marshall
McCracken
Trigg

SECOND DISTRICT

D. M. GRIFFITH, OWENSBORO, COUNCILOR

Breckenridge
Crittenden
Daviess
Hancock
Henderson
Hopkins
McLean
Muhlenburg
Ohio
Union
Webster

THIRD DISTRICT

J. H. BLACKBURN, BOWLING GREEN, COUNCILOR.

Allen
Barren
Butler
Christian
Cumberland
Hart
Logan
Monroe
Metcalfe
Warren-Edmonson
Simpson
Todd

FOURTH DISTRICT

C. Z. AUD, CECILIA, COUNCILOR.

Bullitt
Grayson
Hardin
Henry
Larue
Meade
Shelby
Oldham
Nelson

FIFTH DISTRICT

C. G. HOFFMAN, LOUISVILLE, COUNCILOR

Anderson
Boone
Carroll
Franklin
Franklin
Gallatin
Jefferson
Owen
Spencer
Trimble

SIXTH DISTRICT

R. C. MCCHORD, LEBANON, COUNCILOR.

Adair
Boyle
Green
Mercer
Marion
Taylor
Washington

SEVENTH DISTRICT

A. W. CAIN, SOMERSET, COUNCILOR.

Casey
Clinton
Garrard
Lincoln
Pulaski
Rockcastle
Russell
Wayne
McCreary

EIGHTH DISTRICT

J. E. WELLS, CYNTHIANA, COUNCILOR.

Bourbon
Bracken
Campbell-Kenton
Fleming
Grant
Harrison
Jessamine
Mason
Nicholas
Pendleton
Robertson
Scott
Woodford

NINTH DISTRICT

J. W. KINCAID, CATLETTSBURG, COUNCILOR.

Boyd
Carter
Elliott
Floyd
Greenup
Johnson
Lewis
Lawrence
Magoffin
Martin
Pike

TENTH DISTRICT

R. J. ESTILL, LEXINGTON, COUNCILOR.

Bath
Breathitt
Clark
Estill
Fayette
Knott
Lee
Letcher
Madison
Menifee
Montgomery
Morgan
Owsley
Perry
Powell
Rowan
Wolfe

ELEVENTH DISTRICT

J. S. LOCK, BARBOURVILLE, COUNCILOR.

Bell
Clay
Harlan
Jackson
Knox
Laurel
Leslie
Leslie
Whitley
October 4
October 28
October 2

CONSTITUTION AND BY-LAWS OF THE KENTUCKY STATE MEDICAL ASSOCIATION ADOPTED AT PADUCAH IN 1902 AS AMENDED

CONSTITUTION

ARTICLE I.—NAME OF THE ASSOCIATION.

The name and title of this orgainzation shall be the Kentucky State Medical Association.

ARTICLE II.—PURPOSE OF THE ASSOCIATION.

The purpose of the Association shall be to federate and bring into compact organization the entire medical profession of the State of Kentucky, and to unite with similar associations in other states to form the American Medical Association, with a view to the extension of medical knowledge, and to the advancement of medical science, to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interest and to the enlightenment and direction of public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION.

Section 1. This Association shall consist of Members, Delegates and Guests.

Sec. 2.—MEMBERS. The members of this Association shall be the members of the component county medical societies.

Sec. 3.—DELEGATES. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component county societies in the House of Delegates of this Association.

Sec. 4.—GUESTS. Any distinguished physician not a resident of this State may become a guest during any Annual Session upon invitation of the Association or its Council, and shall be accorded the privileges of participating in all of the scientific work of that session.

ARTICLE V.—HOUSE OF DELEGATES

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, and (2) *ex-officio*, the officers of the Association as defined in Article VIII, Section 1, of this Constitution.

ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interest of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VII.—SESSIONS AND MEETINGS

Section 1. The Association shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

Sec. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS.

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and eleven Councilors.

Sec. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of five years each, the Councilors being divided into classes so that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The Officers of The Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the proceeding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon the Annual Session and who has not been a member of the Association for the past two years.

ARTICLE IX.—FUNDS AND EXPENSES.

Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publication. Funds may be appropriated by the

House of Delegates to defray the expenses of the Annual Session, for publication and for such other purposes as will promote the welfare of the Association and profession.

Article X.—Referendum

The General Meeting of the Association may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the membership of the Association for a final vote; and if the persons voting shall comprise a majority of all the members, a majority of such vote shall determine the question and be binding upon the House of Delegates.

Article XI.—The Seal

The Association shall have a common Seal with power to break, change or renew the same at pleasure.

Article XII.—Amendments

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

BY-LAWS

Chapter I.—Membership

Section 1.—All members of the Component County Societies shall be priveleged to attend all meetings and take part in all the proceedings of the Annual Session, and shall be eligible to any office within the gift of the Association. Provided, that no physician may become a member of any county society unless he signs and keeps inviolate the following pledge:

I hereby promise upon my honor as a gentleman that I will not so long as I am a member of the Kentucky State Medical Association practice division of fees in any form; neither by collecting fees from others referring patients to me nor by permitting them to collect my fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate anyone referring patients to me nor will I utilize any man as an assistant as a subterfuge for this purpose.

Sec. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima face* evidence of his right to register at the annual session in the respective bodies of this Association.

Section 3. No person who is under sentence or suspension or expulsion from any component society of this Association or whose name has been dropped from its roll of members shall be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings, until such time as he has been relieved of such disability.

Sec. 4. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by receive a badge which shall be evidence of his reference to the roster of the society, he shall right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

Chapter II.—Annual and Special Sessions of the Association

Section 1. The Association shall hold an annual session, meeting every third year in the city of Louisville, and the other two years at some point in the State fixed at the preceding annual session.

Chapter III.—General Meeting

Section 1. The General Meeting shall include all registered members, delegates and guests, who shall have equal rights to participate in the proceedings and discussions; and except guests, to vote on pending questions. Each General Meeting shall be presided over by the President, or in his absence or disability or upon his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the annual orations and the entire time of the Sessions as far as may be shall be devoted to papers and discussions relating to scientific medicine.

Sec. 2. The general Meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved by the House of Delegates.

Sec. 3. Except by special vote, the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed.

Sec. 4. No address or paper before the Associaton, except those of the Presdent and Orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject.

Sec. 5. All papers read before the Association shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done, it shall not be published.

Chapter IV—House of Delegates

Section 1. The House of Delegates shall meet annually at the time and place of the Annual Session of the Association and shall so fix its hours of meeting as not to conflict with the first General Meeting of the Association, or with the meeting held for the address of the President and the annual orations, and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with the duties. But if the business interests of the Association and profession require, it may meet in advance or remain in session after the final adjournment of the General Meeting.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every 25 members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate. In case the regularly elected delegate is unable to attend the annual meeting of the Association, the President of the county society shall have the power to appoint an alternate, who shall have the rights and privileges of a delegate.

Sec. 3. A majority of the registered delegates shall constitute a quorum and all of the meetings of the House of Delegates shall be open to members of the Association.

Sec. 4. It shall, through its officers, Advisory Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each annual session a stepping stone to further ones of higher interest.

Sec. 5. It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate work in medical centers as well as home study and research and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. With these ends in view, five years after the adoption of the By-Laws no voluntary paper shall be placed upon the annual program or be heard in the Association which has not first been heard in the county society of which the author is a member.

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body in such a manner that not more than one-half of the delegates shall be elected in any one year.

Sec. 9. It shall upon application provide and issue charters to county societies organized to conform to the spirit of the Constitution and By-Laws.

Sec. 10. In sparsely settled sections it shall have the authority to organize the physicians of two or more counties to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies and these societies, when organized and chartered shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It may divide the counties of the State into Councilor Districts, and, when the best interests of the Association and profession will be promoted thereby, organize in each district a medical society, to meet midway between the Annual Sessions of the Association, and members of the chartered county societies and none other shall be members in such district societies. When so organized from the presidents of such district societies shall be chosen the Vice-Presidents of this Association and the Presidents of the county societies of the district shall be the Vice-Presidents of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and such commitee may report to the House of Delegates in person, and may participate in the debate therein.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

Sec. 14. It shall present a summary of its proceedings to the last general meeting of each annual session, and shall publish the same in the JOURNAL.

CHAPTER V.—ELECTION OF OFFICERS

Section 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect, provided, however, that when there are more than two nominees, the nominee receiving the least number of votes on the first ballot shall be dropped and the balloting continue until an election occurs in like manner.

Sec. 2. Any member known to have directly or indirectly solicited votes for or sought any office within the gift of this Association shall be ineligible for any office for two years.

Sec. 3. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General session.

Sec. 4. Nominations for President shall be called for by counties.

CHAPTER VI.—DUTIES OF OFFICERS

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and so far as practicable, shall visit by appointment, the various sections of the State and assist the Councilors in building up the county societies and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of hi sduties In the event of his death, resignation or removal the Council shall elect one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond for the trust imposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the Association and execute the necessary papers; and shall, in general, subject to such direction, have the care and management of the fiscal affairs of the Association. He shall pay money out of the Treasury, only on written order of the Presiden, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of funds in his hands.

Sec. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the program for and attend all meeings of the Association and of the House of Delegates and he shall keep minutes of their respective proceedings in separate record books. He shall charge upon his books the assessments against each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him. He shall be custodian of all record books and papers belonging to the Association, except such as properly belonging to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall keep a card index register of all the legal practitioners of the State by counties, noting on each his statuts in relation to his county society and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meeting, officers of their election, and commitees of their appointment and duties. He shall act as secretary of the Committee on Scientific Work. He shall be editor of the KENTUCKY MEDICAL JOURNAL. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient it is desirable that he shall receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—COUNCIL

Section 1. The Council shall hold daily meetings during the annual session of the Association and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the last day of the annual session of the Association for re-organization and for the outlining of the work for the ensuing year. At this meeting it shall elect a Chairman and Secretary and it shall keep a permanent record of its proceedings. It shall through its Chairman, make an annual report to the House of Delegates at such time as may be provided, which report shall include an audit of the account of the Secretary and Treasurer and other agents of this Association and shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association, or under its control, with such suggestions as it may deem necessary. In the event of a vacancy in any office the Council may fill the same until the next annual election.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each annual session of the House of Delegates. The necessary traveling expenses incurred by such Councilor in the line of the duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expenses in attending the annual session of the Association.

Sec. 3. Collectively the Council shall be the board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates of the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline effecting the conduct of members or of a county society upon which appeal is taken from the decision of an individual Councilor. Its decision in all such cases shall be final.

Sec. 4. The Council shall have the right to communicate the views of the profession and of the Association in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the chairman and secretary of the Council, as such.

Sec. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memories of the Association and shall have authority to appoint such assistants to the editor as it deems necessary. It shall manage and conduct the KENTUCKY MEDICAL JOURNAL, which is the organ of the Association, and all money received by the JOURNAL, the Council or any officer of the Association, shall be paid to the Treasurer of the Association on the first of each month.

Sec. 6. All reports on scientific subjects and all scientiffic discussions and papers read before the Association shall be referred to the KENTUCKY MEDICAL JOURNAL for publication. The editor, with the consent of the Councilor for the District in which resides may curtail or abstract papers or discussions, and the Council may return any paper to its author which it may not consider suitable for publication.

Sec. 7. All commercial exhibits during the annual session shall be within the control and direction of the Council.

CHAPTER VIII.—COMMITTEES

Section 1. The standing committees shall be as follows:

A Commitee on Scientific Work.

A Committee on Publication Policy and Legislation.

A Committee on Medical Education.

A Medico-Legal Committee.

A Committee on Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members of which the President-elect shall be a member and Chairman, and the Secretary shall be a member and Secretary, and shall determine the character and scope of the scientific proceedings of the Association, subject to the provisions or the instructions of the House of Delegates or of the Association, or to the provisions of the Constitution and By-Laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adhered to by the Association as nearly as praticable.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and scientific medicine. It shall keep in touch with the profession and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence in local, state and national affairs and elections. Its work shall be done with dignity becoming a great profession and with that wisdom which will make effective its work and influence. It shall have authority to be heard before the entire Association upon questions of great concern at such times as may be arranged during the annual session.

Sec. 4. The Committee on Arrangements shall consist of the component society in the territory in which the annual session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meetings-places of the Association and of the House of Delegates and of their respective committee, and shall have general charge of all arrangments. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

Sec. 5. The Medico-Legal Committee shall consist of three members, one of whom, the Chairman, shall be elected by the Council for five years, and the Secretary and Treasurer shall be the other two members *ex officio.* This committee shall select and fix the compensation for an attorney, who shall act as General Counsel, and if required, additional local counsel. The Association through this Committee shall defend its members who are in good standing against unjust suits for malpractice.

CHAPTER IX.—ASSESSMENTS AND EXPENDITURES

Section 1. The assessment of four dollars per capita on the membership of the component societies is hereby made the annual dues of this Association. The Secretary of each county society shall forward its assessment together with its roster of all officers and members, lists of delegates, and list of non-official physicians of the county to the Secretary of this Association on the first day of January in each year.

Sec. 2. Any county society which fails to pay its assessment, or make the report required, on or before the first day of April in each year, shall be held as suspended, and none of its members, or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

Sec. 3. All motions or resolutions approparting money, shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates.

CHAPTER X.—RULES OF CONDUCT

The principles set forth in the Principles of Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XI.—RULES OF ORDER

The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XII.—COUNTY SOCIETIES

Section 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constituion and By-Laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the House of Delegates and shall be signed by the President and Secretary of this Association. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made with the aid of the Councilor for the District if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualifications of its own members, but as such societies are the only portals to this Association, every reputable and legally registered physician who is practicing, or who will agree to practice, non-sectarian medicine shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every physician in the county to become a member.

Sec. 6. Any physician who may feel aggreived by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, which, upon a majority vote, may permit him to become a members of an adjacent county society.

Sec. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in the State, his name, upon request shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living in or near a county line may hold membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material conditions of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other preferences shall be unstintingly given to such members.

Sec. 12. At the time for the annual election of officers each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association in the proportion of one delegate to each twenty-five members or major fraction thereof, and the secretary of the society shall send a list of such delegates to the Secretary of this Association at least sixty days before the Annual session.

Sec. 13. The Secretary of each county society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Association, on the first day of January of each year, or as soon thereafter as possible, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 14. The Secretary of each county society shall report to the KENTUCKY MEDICAL JOURNAL full minutes of each meeting and forward to it all scientific papers and discussions which the Society shall consider worthy of publication.

CHAPTER XIII.—AMENDMENTS

These By-Laws may be amended by any annual session by a two-thirds vote of all the delegates present at that session, after the amendment has been laid on the table for one day.

REPORT OF THE COUNCIL.

To the House of Delegates:

On September 1, 1922, the date of this report, there has been an increase of about seventy-five of the total membership over last year. While this is a gratifying increase it is not as great as we had hoped to secure, because there has never been a time when a close, effective professional organization was so necessary to secure for the people of Kentucky the benefits of modern medical knowledge. It is especially to be regretted that our reports indicate there are about four hundred active practicing physicians in the State who are not keeping in constant touch with medical developments through the Kentucky Medical Journal and through close association with their fellow practitioners in the County Societies, and this means that this Association not only loses their influence to a large degree but that they lose the spirit of professional unity and cohesion so essential to the success of every practitioner.

A recent survey of the State made after the re-location of seventy-six men in country districts since January first, last, indicates that there are more than three hundred places in the State in which physicians have been located for many years where there are no physicians or where they have retired from active practice. On the other hand, in the newly opened mining towns we have in Kentucky, the number of physicians have greatly increased, and no section of the United States is probably better supplied with competent men. While some progress is being made in the building of roads and in improvement of schools in our country districts, this is quite slow. More hospitals are being built and equipped and in a measure where this has been done more work is being done by each man, so that the need for an increased number of doctors is less. For the past few years a number of active practitioners in the State has been decreasing at the rate of about seventy-five a year. This is a serious problem to which the statemanship of the County must turn.

A far greater moment is the unquestioned fact that a very considerable per cent of the people are not now and never did receive adequate medical services. Even in our best counties, lacerations of the perineum, hernias, and diseased tonsils and adenoids, hemorrhoids and other rectal conditions, the prenatal care of pregnant women and the regular medical supervision of infants and children have received meager, if any attention. Recent clinics conducted by progressive County Medical Societies suggest that a state survey would indicate between twenty-five and thirty per cent of all active cases of tuberculosis in Kentucky are not under treatment of physicians, and our vital statistics records show that less than ten per cent of those who die have been under treatment for more than six months previous to death. These are startling figures and are referred to the House of Delegates and to the County Societies for such action as will lead to public education as to the necessity for medical attendants upon conditions causing ill health in Kentucky which are neither being prevented nor treated.

To these serious problems the profession must address itself. At the recent session of the General Assembly the bill repealing the Medical Practice Act passed almost unanimously in the House and was only rejected in the Senate because it was not brought to a vote. Every physician in Kentucky knows that repealing the serious modifications of the Medical Practice Act would be faught with disaster. While official records show that in 1888 there were more than fifteen hundred more physicians in Kentucky than at present, it also shows conclusively that at that time seventeen hundred of these men had attended one course of lectures or less and were totally incompetent to diagnose or treat any sick person. While there are that many fewer physicians in the State it must be remembered that the average length of life of Kentuckians has been increased more than ten years since that time and two and one-third years of this increase have appeared in the last decade when we have had a smaller number of physicians, almost all of whom are adequately educated and trained. The public must be brought to realize that the art of medicine is becoming more and more exact and that those trained to practice it require a longer time and a greater preliminary education in order to use modern instruments of precision than was formerly necessary when the doctors entire armamentarium could be carried in the saddle bag.

The Council is impressed with the necessity for the extension of preventive medicine. In our rural districts every citizen who has not had typhoid fever should be inoculated against this disease every two or three years. In a few counties and in many localities in most counties this is being done, but an increased death rate from typhoid fever in 1921 and again this year, indicates that it is not being done adequately. The Schick Test and the toxin-antitoxin immunization against diphtheria are as complete and effective as any method known to modern medicine, and yet, it is distressing to note from our vital statistics returns that the death rate from diphtheria has increased over each of the past two years. It is urged that County Societies hold public meetings in various sections of the county where the public may be educated in regard to these necessary measures and that clinics be held by the County Societies for administration of the prophylatic vaccines for the indigent. If this were done actively in every county it would reduce our death rate to that of other states in the Union that do these things.

There are three great taxes in Kentucky, Bad Roads, Poor Schools and Ill Health, and of these the latter is far the most expensive. Neither of them can be wholly improved until a joint attack is made upon all three. Good roads and good schools are necessary to good health, but neither of these are of use unless we have a healthy, virile population to utilize them.

It is gratifying that this year at the St. Louis Session of the American Medical Association the Surveys Committee on Medical Education under the leadership of Dr. Rilus Eastman of Indianapolis reported, urging that undergraduate medical students be trained only as general practitioners and that the outrageous tendency to turn out the recent graduate as a specialist be discouraged to the utmost. In order to make this recommendation effective, general practitioners must be put on the faculty of the Medical Schools. There must be no lowering of standards, there must be such a revision of the curriculum as will cut out much of the technique training that has been lugged in by specialists who know little else. The younger members of the profession who have been out of school for a few years are realizing that much of the stuff which is being taught them is useless to them and are urging that it be replaced with clinical teaching that will be of real value.

Three years ago the General Assembly placed in the hands of the State Board of Health the examining and licensing of all cults and sects of treating sick people in any way. The wise administration of this law was inaugurated by one of the greatest medical statesmen and jurist who has ever served the profession and the public, the late Dr. Joseph N. McCormack, and it is the privilege as well as the duty of the profession to see that this statute is preserved and that it is enforced so that it will accomplish its purpose of just and fair treatment for all who desire to treat sick people, that it shall preserve the public health by keeping out of practice those who are incompetent. It is gratifying to know that the health and lives of our people are being protected from the hordes of incompetent and untrained men who are swarming in states whose legislatures are failing to realize the danger to their people. If a man or a woman has had a basic education that enables him or her to make accurate diagnosis so that they know not to do things, they can, most of the time, be safely trusted with what they have been taught to do. Complaints are frequently made as to failure to enforce the medical and other laws. These failures are matters for which the legal profession in each county is responsible. Where the County and Circuit Judges, and County and Commonwealth Attorneys are competent, there is never any question about law enforcement. Where they are ignorant or can be influenced by financial and other interests than the public, little can be expected. This Association and the State Board of Health have joined in the employment of the well known firm of Beckham, Hamilton and Beckham as their attorneys and they are ready to assist in the enforcement of the law whenever the physicians secure the necessary evidence. It is obviously impossible for any one outside of the locality infested with law violators to work up evidence and carry on the case through the courts, but we are ready to help in the conduct of the case in court, when the evidence is ready to be presented.

The Medico-Legal Committee employes Hon. Fred Forcht as its General Council in the defense of unjust malpractice cases against members of the Association but Dr. John J. Moren, the Chairman of the Committee will report in detail as to the conduct of the fiscal affairs of the Association giving in exact detail every source of income and reprint every check showing expenditure of every cent. It is urged that the entire membership read these reports carefully and accurately as it is the desire of the Council and of the Officers of the Association to carry out the wishes of the membership. It would be well to call special meetings of the County Societies so that the delegates may come to Paducah knowing the wishes of their constituents in all these matters.

Respectfully submitted,

R. C. McCHORD, M.D., Chairman.

AN OFFICIAL ANNOUNCEMENT.

In accordance with the By-Laws, the following extract from the Minutes of the House of Delegates o fthe Kentucky State Medical Association at its third meeting during Annual session, 1921, held on September 22, is published for the information of delegates and members:

"Dr. Virgil E. Simpson, delegate from Jefferson County, said: 'I wish to give notice that at the next annual meeting I shall offer an amendment to Chapter VI of the Bq-Laws, which pertain to the House of Delegates, amending Section 2, which I think will very materially relieve the present situation which unfortunately was raised in regard to countes not being represented by delegates who were obliged to leave for their homes. I am quite sure that this section can be so amended that it will still conform to the requirements of the American Medical Association and be in accord with our sister State societies' constitutions, and at the same time will not do an injustice in occasional instances that may arise where the presence or absence is so uncertain as that of a doctor or delegate.' "

Apparatus for Basal Metabolism Determination.—A detailed description is given by Bailey of an apparatus used by him in determining the respiratory exchange in man. The arrangement described is suitable for routine laboratory or institutional use in determining the basal metabolism. The particular features are the use of the full-sized gas mask, the special arrangement of rubber flutter valves, a newly designed gasometer, the use of a new type of gas-sampling bottle in conjunction with the Henderson-Haldane gas-analysis apparatus with several added mechanical features which greatly lessen the labor of gas anlayses.

AUDITOR'S REPORT

To the Council of the Kentucky State Medical Association:

GENTLEMEN:

At your request, I have made a complete audit of the books and accounts of your Treasurer, Dr. W. B. McClure, and your Secretary, Dr. A. T. McCormack, from September 1921 to September 1922 and respectfully submit the following report:

Reconciliation of Treasurer's account for period September 1921 to September 1922.

Amount received from Secretary (in transit last report)		$ 955.99
Amount received from Secretary 1921-1922 collections		14,551.47
Balance as per report September 1, 1921		7,827.99
Total		$23.335.45

DISBURSEMENTS

Vouchers accepted No. 1 to 176, inclusive	$19,153.61	
Vouchers outstanding, last report	1,158.85	
Total		$20,312.46
Balance, agreeing with Secretary		$ 3,022.99
Balance, Second National Bank, Lexington, Ky., as per pass book		$ 3,895.04
Vouchers outstanding viz:		
No. 329, Feb. 8, 1917, T. W. Singer, Chicago	$ 6.00	
No. 84, June 6, 1921, A. P. Hunt, Fullerton	1.00	
No. 85. July 3, 1922, Dr. M. M. Price	4.47	
No. 111. Feb. 28, 1922, Dr. V. A. Stilly	6.50	
No. 169, July 29, 1922, Ludlow Petty, P. M.	25.00	
No. 171, Dr. A. T. McCormack	150.00	
No. 172, Dr. L. H. South	112.50	
No. 173. Elva Grant	75.00	
No. 174, Bush Krebs Co.	3.68	
No. 175, Mayme Sullivan	5.00	
No. 176, Times-Journal Pub. Co.	482.90	
Total Vouchers outstanding		$ 872.05
Balance agreeing with Secretary		$ 3,022.99

Vouchers No. 171,176 are in hands of Secretary to be delivered when due, August 31, 1922.

STATEMENT OF ASSETS

Balance in Second National Bank, Lexington, Ky., to the credit of Dr. W. B. McClure, Treasurer	$ 3,895.04
Less Vouchers outstanding	872.05
	$ 3,022.99
Liberty Bonds in hands of Treasurer, (Face Value)	$ 3,000.00
Office Furniture, etc., (see Exhibit "A")	847.39
Total	$ 6,870.38

Every voucher No. 1 to 176, inclusive, is properly signed, itemized and receipted.

All items of income and disbursement are properly charged and credited, the books are in balance and properly kept.

The various exhibits following give a correct and complete history in aggregate and detail of the year's work and the financial condition of said Association.

Respectfully submitted,

B. P. EUBANK, *Auditor.*

EXHIBIT "A"

RECEIPTS

Dues from County Societies	$ 8,127.50	
Income of Journal (exclusive of investments, etc.)	6,296.47	$14,423.97
Interest on Investments, viz:		
Interest on Liberty Bond No. 1.	42.50	
Interest on Liberty Bond No. 2.	85.00	$ 127.50
Total Receipts		$14,551.47
Balance on hand September 1, 1921		7,625.13
Total		$22,176.60

DISBURSEMENTS

STATE MEDICAL ASSOCIATION:		
Secretary's Salary	$ 1,800.00	
Secretary's Stenographer	863.33	
Secretary's stamps and envelopes	672.84	
Treasurer's office expense and bond	12.50	
Officers, Councilor and Committee expenses	147.68	
Attorney's Fees, Medico-Legal Committee	2,626.95	
Cost and Expenses	900.00	
Association Sundries	1,158.18	
Expenses to Lexington Meeting	728,32	
Expense of Louisville Meeting	1,078.68	
Total		$ 9,988.48
KENTUCKY MEDICAL JORNAL:		
Business Manager's Salary	$ 1,165.00	
Printing Journal	4,282.22	
Postage on Journal	175.00	
Cost of paper	1,438.68	
Journal, Advertising Commissions	95.65	
Journal Sundries	1,312.04	
President's Sundries	10.50	
Vice-President's Sundries	19.25	
Treasurer's Expense	6.50	
Secretary's Sundries	421.79	
Business Manager's Sundries	114.66	
Expenses, Dr. Walton M. Brunet	123.84	
Total Journal		$ 9,165.13
Grand Total		$19,153.61
Balance on hand this date		3,022.99
Total		$22,176.60

EXHIBIT "B"

Detailed list of receipts from County Societies from September 1921, to September 1, 1922, compared with incomes of same period last year.

	1921	1922
Adair	$ 32.00	$ 32.00
Allen	52.00	52.00
Anderson	48.00	40.00
Ballard	48.00	64.00
Barren	48.00	76.00
Bath	46.00	24.00
Bell	118.00	144.00
Boone	18.00	12.00
Bourbon	90.00	72.00
Boyd	154.00	176.00
Boyle	56.00	40.00
Bracken	30.00	20.00
Breathitt	43.00	32.00
Breckinridge	72.00	76.00
Bullitt	36.00	36.00
Butler	24.00	20.00
Caldwell	48.00	56.00
Calloway	48.00	80.00
Campbell-Kenton	426.00	440.00
Carlisle	40.00	40.00
Carroll	32.00	36.00
Carter	39.00	50.00
Casey	20.00	19.00
Christian	144.00	164.00
Clark	52.00	68.00
Clay	32.00	36.00
Clinton	20.00	16.00
Crittenden	35.00	32.00
Cumberland	40.00	36.00
Daviess	204.00	216.00
Elliott	7.00	
Estill	10.00	28.00
Fayette	330.00	320.00

Fleming	60.00	52.00
Floyd	4.00	23.00
Franklin	83.00	80.00
Gallatin	16.00	20.00
Fulton	56.00	76.00
Grant	56.00	60.00
Garrard	32.00	36.00
Graves	120.00	120.00
Grayson	55.50	60.00
Green	16.00	24.00
Green	16.00	24.00
Greenup	17.00	24.00
Hancock	4.00	4.00
Hardin	88.00	108.00
Harlan	105.00	180.00
Hart	56.00	36.00
Harrison	88.00	84.00
Henderson	95.00	76.00
Henry	56.00	52.00
Hickman	52.00	48.00
Hopkins	92.00	111.50
Jackson	20.00	12.00
Jefferson	1,227.00	1,452.00
Jessamine	40.00	40.00
Johnson	44.00	51.00
Knott		4.00
Knox	44.00	68.00
Larue	36.00	32.00
Laurel	36.00	44.00
Lawrence	48.00	36.00
Lee	20.00	12.00
Leslie	8.00	8.00
Letcher	52.00	60.00
Lewis	35.00	24.00
Lincoln	56.00	64.00
Livington	44.00	36.00
Logan	79.00	88.00
Lyon	24.00	24.00
McCracken	167.00	172.00
McCreary	24.00	24.00
McLean	24.00	21.00
Madison	134.00	108.00
Magoffin	124.00	108.00
Marion	64.00	64.00
Marshall	64.00	60.00
Martin		
Mason	56.00	76.00
Meade	20.00	24.00
Menifee		
Mercer	76.00	72.00
Metcalfe	36.00	32.00
Monroe	32.00	28.00
Montgomery	56.00	56.00
Morgan	4.00	4.00
Muhlenberg	100.00	104.00
Nelson	60.00	52.00
Nicholas	40.00	36.00
Ohio	38.00	48.00
Oldham	56.00	44.00
Owen	28.00	28.00
Owsley	16.00	12.00
Pendleton	36.00	44.00
Perry	60.00	104.00
Pike	40.00	80.00
Powell	19.00	20.00
Pulaski	52.00	88.00
Robertson	21.00	8.00
Rockcastle	28.00	20.00
Rowan	8.00	19.00
Russell	40.00	36.00
Scott	76.00	72.00
Shelby	87.00	80.00
Simpson	52.00	44.00
Spencer	8.00	12.00
Taylor	40.00	40.00
Todd	56.00	48.00
Trigg	4.00	24.00
Trimble	16.00	4.00
Union	39.00	61.00
Warren	151.00	156.00
Washington	36.00	52.00
Wayne	24.00	16.00
Webster	12.00	20.00
Whitley	102.00	108.00
Wolfe	4.00	
Woodford	44.00	24.00
	$7,546.50	$8,127.50
Gain	$ 581.00	

EXHIBIT "C"

Invoice of the property of the Association, September 1, 1922.

Addressograph with 5,000 complete addressed plates with list device, etc.	$ 600.00
Folding Machine	140.00
1 Underwood Typewriter	100.00
1 Desk	79.00
Filing Cabinet	64.75
Rubber Stamps	9.00
Typewriter Cabinet	33.00
Guide Cards	7.48
1-3 Adding Machine	106.25
Typewriter Chair	9.00
1 Electric Fan	18.00
1 Desk Chair	32.50
1 Globe Safe with Fixtures	130.00
1,000 No. 5 2-cent Stamped Envelopes	21.25
1,000 No. 7, 2-cent Stamped Envelopes	22.50
500 No. 9, 2-cent Stamped Envelopes	13.41
Total	$1,386.14
Reduction for depreciation in machinery	538.75
	$ 847.39

EXHIBIT "D"

Secretary's Monthly Balance Sheet, agreeing with books.

September 1. The balance on hond Sept. 1921..$7,625.13

1921-22	Expenses	Collections	Balance
October 1	$ 3,394.66	$ 1,303.87	$ 5,534.34
November 1	1,435.12	922.47	5,021.69
December 7	1,417.76	427.23	4,031.16
January 1,	1,262.88	338.49	3,106.77
February 1.	2,503.49	1,578.15	2,181.43
March 1,	1,108.22	1,492.43	2,565.64
April 1,	1,970.66	1,990.31	2,585.29
May 1	1,332.01	3,284.11	4,561.89
June 1,	1,307.51	3,284.11	4,561.89
June 1,	1,332.01	1,283.41	4,513.29
July 1,	1,218.10	632.89	3,928.08
August 15	820.08	660.17	3,022.99
August 15,	829.08	660.17	3,022.99
	$19,153.61	$14,551.47	
Bal. on hand, Sept. 1, 1921		7,625.13	
		$22,167.60	
Balance on hand Sept. 1, 1922			$ 3,022.99
Total Expenses			19,153.61
			$22,176.60

EXHIBIT "E"

Collections by Secretary on account of Kentucky State Medical Association, corresponding with checks, deposit slips, and receipts, filed herewith:

1921-22	
October 1—To Collections to Date	$ 405.50
November 1—To Collections to Date	76.00
December 1—To Collections to Date	30.00
January 1—To Collections to Date	20.00
February 1— To Collections to Date	900.00
March 1—To Collections to Date	844.00
April 1—To Collections to Date	1,588.00
May 1—To Collections to Date	2,796.00
June 1—To Collections to Date	964.00
July 1—To Collections to Date	244.00
August 1—To Collections to Date	164.00
August 15—To Collections to date	96.00
Total for Year	$8,127.50

EXHIBIT "F"

Collections by Editor on account of the Journal, corresponding with checks, deposit slips ,and receipts filed herewith.

1921-22	
October 1—To Collections to Date	$ 898.37
November 1—To Collections to Date	846.47
December 1—To Collections to Date	397.23
January 1—To Collections to Date	318.49
February 1—To Collections to Date	678.15
March 1—To Collections to Date	648.43
April 1—To Collections to Date	402.31
May 1—To Collections to Date	488.11
June 1—To Collections to Date	319.41
July 1—To Collections to Date	388.89
August 1—To Collections to Date	473.94
August 15—To Collections to Date	564.17
Total for Year	6,423.97

EXHIBIT "G"

Total membership by Councilor Districts and by Counties for 1921 as compared to that of 1922.

FIRST DISTRICT—W. W. RICHMOND, CLINTON, COUNCILOT

	1921	1922
Ballard	12	14
Caldwell	12	14
Calloway	12	19
Carlisle	10	10
Fulton	14	18
Graves	30	32
Hickman	13	12
Livingston	11	9
Lyon	6	6
Marshall	16	15
McCracken	41	41
Trigg	1	5
	178	195

SECOND DISTRICT—D. M. GRIFFITH, OWENSBORO COUNCILOR

	1921	1922
Breckinridge	18	18
Crittenden	9	8
Daviess	50	52
Hancock	1	1
Henderson	22	18
Hopkins	23	26
McLean	6	5.
Muhlenberg	25	26
Ohio	8	10
Union	10	12
Webster	3	5
	175	181

THIRD DISTRICT—J. H. BLACKBURN, BOWLING GREEN, COUNCILOR

	1921	1922
Allen	13	13
Barren	12	14
Butler	5	6
Christian	36	39
Cumberland	10	9
Hart	14	9
Logan	19	23
Metcalfe	9	7
Monroe	8	7
Simpson	13	11
Simpsor	13	11
Todd	14	12
Warren-Edmonson	37	35
	190	185

FOURTH DISTRICT—C. Z. AUD, CECELIA, COUNCILOR

	1921	1922
Bullitt	9	9
Grayson	14	15
Hardin	22	26
Henry	14	12
Larue	9	8
Meade	5	6
Nelson	15	14
Oldham	14	11
Shelby	21	20
	123	121

FIFTH DISTRICT—C. G. HOFFMAN, LOUISVILLE, COUNCILOR

	1921	1922
Anderson	12	10
Booue	5	2
Carroll	8	8
Franklin	20	19
Gallatin	4	4
Jefferson	304	344
Owen	7	7
Spencer	2	3
Trimble	4	1
	366	398

SIXTH DISTRICT—R. C. McCHORD, LEBANON, COUNCILOT

	1921	1922
Adair	8	8
Boyle	14	10
Green	4	6
Marion	16	16
Mercer	19	18
Taylor	10	10
Washington	9	13
	80	81

SEVENTH DISTRICT—A. W. CAIN, SOMERSET, COUNOILOR

	1921	1922
Casey	5	4
Clinton	5	4
Garrard	8	9
Lincoln	14	26
McCreary	6	6
Pulaski	13	21
Rockcastle	7	5
Russell	10	9
Wayne	6	5
	74	79

EIGHTH DISTRICT—J. E. WELLS, CYNTHIANA, COUNCILOR

Bourbon	21	16
Bracken	6	5
Campbell-Kenton	87	85
Fleming	15	13
Grant	14	14
Harrison	22	21
Jessamine	10	10
Mason	12	16
Nicholas	10	8
Pendleton	9	11
Robertsou	3	2
Scott	19	18
Woodford	8	4
	236	223

NINTH DISTRICT—J. W. KINCAID, CATLETTSBURG COUNCILOR

	1921	1922
Floyd	1	6
Boyd	38	41
Carter	9	11
Elliott	2	0
Greenup	4	6
Johnson	11	11
Lawrence	12	9
Lewis	9	6
Magoffin	0	0
Pike	10	20
	96	110

TENTH DISTRICT—R. J. ESTILL, LEXINGTON, COUNCILOR

	1921	1922
Bath	10	6
Breathitt	11	9
Clark	13	13
Estill	3	4
Fayette	80	80
Knott	0	1
Lee	5	3
Letcher	13	15
Madison	30	27
Menifee	0	0
Montgomery	14	14
Morgan	1	1
Owsley	4	3
Perry	15	24
Powell	4	4
Rowan	2	3
Wolfe	2	0
	207	209

ELEVENTH DISTRICT—J. S. LOCK, BARBOURVILLE, COUNCILOR

	1921	1922
Bell	28	35
Clay	8	9
Harlan	24	31
Jackson	5	3
Knox	11	17
Laurel	9	11
Leslie	2	2
Whitley	24	25
	111	133

Total Membership, 1921	1,836
Total Membership, 1922	1,915
Gain in Membership	79

EXHIBIT "H"

Detailed Statement of Disbursements of W. B. McClure, Treasurer, Kentucky State Medical Association, each made on an itemized Voucher Check signed by Dr. J. A. Stucky, President and Dr. A. T. McCormack, Secretary, and himself, from September 1, 1921 to September 1, 1922.

September 1. Voucher Check No. 1		$ 600.00
MR. ELWOOD HAMILTON, Attorney,		
To Attorney's fees for one year.		
Approved by Council and ordered paid by House of Delegates.		
September 1. Voucher Check No. 2		$ 350.00
WADE H. LAIL, Attorney,		
To Attorney's fees in case of Joseph Humphrey vs. Dr. C. A. Beckett.		
Approved by Council and ordered paid by House of Delegates.		
September 1. Voucher Check No. 3		$ 22.46
E. T. SCHMITT, P. M.		
To deposit on stamped envelopes.		
Approved by Council and ordered paid by House of Delegates.		
September 1. Voucher Check No. 4		$ 531.50
TIMES-JOURNAL PUBLISHING CO.		
To August issue 2,200—112 Page	$ 340.00	
20 per cent added	68.00	
Extra cost paper	105.40	
Catalog Envelopes	11.50	
22 Changes	4.40	
Printing Envelopes	2.20	
Approved by Council and ordered paid by House of Delegates.		
September 1. Voucher Creck No. 5		$ 100.00
FIELDS AND FIELDS, Attorneys.		
To fee in case of Moody's Admr. vs. Drs. C. D. Johnson & S. H. Greenberg, U. S. Dist. Court.		
Approved by Council and ordered paid by House of Delegates		
September 1. Voucher Check No. 6		$ 25.00
DR. A. T. McCORMACK, Louisville.		
To Secretarial Expenses.		
Approved by Council and ordered paid by House of Delegates.		
September 1. Voucher Check No. 7		$ 35.00
E. T. SCHMITT, P. M.		
To 1,600 stamped envelopes.		
October 1. Voucher Check No. 8		$ 67.38
E. T. SCHMITT, P. M.		
To balance on stamped envelopes.		
October 1. Voucher Check No. 9		$ 264.65
DR. A. T. McCORMACK, Louisville.		
To September Salary as Secretary	$ 150.00	
To Expenses at State Meeting	114.65	
Approved by Council and ordered paid by House of Delegates.		
October 1. Voucher Check No. 10		$ 65.00
DR. L. H. SOUTH, Louisville.		
To September salary, Business Manager.		
Approved by Council and ordered paid by House of Delegates.		
October 1. Voucher Check No. 11		$ 50.00
EDITH LANDRUM, Louisville.		
To September salary, Bookkeeper.		
Approved by Council and ordered paid by House of Delegates.		
October 1. Voucher Check No. 12		$ 37.50
E. H. ROEDERER, Louisville.		
To 500 Delegate badges	$ 35.00	
To 10 Official Stenographers	2.50	
Approved by Council and ordered paid by House of Delegates.		
October 1. Voucher Check No. 13		$ 265.76
E. R. BASSETT CO.		
To 328 Buttons, Gold Filled	$ 114.80	
To 629 Bars and Bangles	$ 150.96	
Approved by Council and orderered paid by House of Deelgates.		
October 1. Voucher Check No. 14		$ 26.00
DR. CLAUDE G. HOFFMAN.		
To expenses as Councilor.		
Approved by Council and ordered paid by House of Delegates.		
October 1. Voucher Check No. 15		$ 60.50
B. P. EUBANKS, Auditor.		
To Auditing books of State Medical Association and Journal	$ 50.00	
To R. R. fare and meals	$ 10.50	
Approved by Council and ordered paid by House of Delegates.		
October 1. Voucher Check No. 16		$ 566.60
TIMES-JOURNAL PUBLISHING CO.		
To September issue 2,200—112 pages	$ 340.00	
20 per cent added	68.00	
Extra cost paper	105.40	
Catalog Envelopes	11.50	
Printing Envelopes	2.20	

Difference in cost setting tabular matter in 6 point 32.40
Putting in inserts 3.50
18 Changes 3.60

October 1. Voucher Check No. 17 $ 27.00
DR. W. B. McCLURE, Treasurer.
To expenses at meeting
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 18 $ 42.00
DR. E. N. HALL, Bowling Green,
To expenses as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 19 $ 8.75
DR. R. C. McCHORD, Lebanon.
To expenses as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 20 $ 9.43
DR. J. E. WELLS, Cynthiana,
To expenses as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 21 $ 3.50
C. F. BIERBAUM.
To card board signs for State Fair.

October 1. Voucher Check No. 22 $ 25.00
E. T. SCHMITT, P. M., Louisville.
To stamps.

October 1. Voucher Check No. 23 $ 25.00
W. C. MORRIS, P. M., Bowling Green.
To postage on Journals.

October 1. Voucher Check No. 24 $ 37.13
MAYME SULLIVAN, Louisville.
To expense State Meeting $ 12.13
To Honorarium 25.00
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 25 $ 25.00
MARY ATKINS, Louisville.
To Hororarium
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 26 $ 25.00
MAUDE E. HUNTER, Louisville.
To Honorarium.
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 27 $ 21.50
DR. A. W. CAIN, Somerset,
To expenses as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 28 $ 5.00
DR. D. M. GRIFFITH, Owensboro.
To expenses as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 29 $ 12.50
HINES & CRUMP, Agents.
To premium on Bonds.
Approved by Council and ordered paid by House of Delegates.

October 1. Voucher Check No. 30 $ 30.00
THE PENDENNIS CLUB.
To dinners for Kentucky Medical Association Officers.
Approved by Council and ordered paid by House of Delegates.

October 1, Voucher Check No. 31 $ 30.50
A. MARKHAM & CO., Louisville.
To one shadow box, 4 lights, electric wiring.
Time and lumber for making box.

November 1. Voucher Check No. 32 $ 175.00
DR. A. T. McCORMACK, Louisville.
To October Salary, Secretary $ 150.00
To cash expended 25.00

November 1. Voucher Check No. 33 $ 100.00
DR. L. H. SOUTH, Louisville.
To October salary, Business Manager.

November 1. Voucher Check No. 34 $ 50.00
EDITH LANDRUM, Louisville.
To October salary, bookkeeping.

November 1. Voucher Check No. 35 $ 300.00
BENNETT, ROBBINS & ROBBINS, Attorneys.
To legal services rendered in case of Arthur A. Burns vs. Dr. G. F. Beeler.

November 1. Voucher Check No. 36 $ 8.00
DR. W. W. RICHMOND, Clinton.
Expenses at Kentucky State Medical Meeting.

November 1. Voucher Check No. 37 $ 496.25

TIMES-JOURNAL PUBLISHING CO., Bowling Green.

To 500 cards	$ 3.00
700 Programs	26.00
2,200 October issue 96 pages	300.00
20 per cent added	60.00
Extra cost paper	90.35
Envelopes	11.50
Printing envelopes	2.50
16 changes	3.20

November 1. Voucher Check No. 38 $ 15.00

AUGUST R. BAUMER, Louisville.
To one floral design.

November 1. Voucher Check No. 39 $ 3.25

KOEHLER STAMP AND STENCIL COMPANY.
To 1 auto wood cut and rubber stamp.

November 1. Voucher Check No. 40 $ 287.62

SEELBACH HOTEL COMPANY, Louisville.
To expense of Louisville meeting.

Rooms 2 and 3 four days	$ 80.00
Room 6 three days	30.00
To Rooms 9 and 10 three days	60.00
To Rooms 1, 5 and 6 three days	90.00
To telephone, express and night watchmen	27.62

December 1. Voucher Check No. 41 $ 150.00

DR. A. T. McCORMACK, Louisville.
To November salary, Secretary.

December 1. Voucher Check No. 42 $ 100.00

DR. L. H. SOUTH, Louisville.
To November salary, Business Manager.

December 1. Voucher Check No. 43 $ 50.00

EDITH LANDRUM, Louisville.
To November salary, Bookkeeper.

December 1. Voucher Check No. 44 $ 43.75

COURIER JOURNAL JOB PRINTING CO.
To 2500 membership cards.

December 1. Voucher Check No. 45 $ 123.84

THE AMERICAN SOCIAL HYGIENE ASSOCIATION.
To expenses of Dr. Walter M. Brunet (August 19-August 24.)

December 1. Voucher Check No. 46 $ 399.42

MR. WILLIAM WHITFORD.
To expenses as reporter at State Association.

December 1. Voucher Check No. 47 $ 525.75

TIMES JOURNAL PUBLISHING COMPANY, Bowling Green.

To publication of Nov. issue (112 pages)	$ 340.00
20 per cent added	68.00
Extra cost of paper	105.40
Envelopes	11.50
22 changes	4.40
Printing envelopes	2.20
Total	$ 531.50
Less one-half of envelopes	5.75
Net	$ 525.75

December 1. Voucher Check No. 48 $ 25.00

STATE BOARD OF HEALTH.
To stamps.

December 23. Voucher Check No. 49 $ 150.00

DR. A. T. McCORMACK, Louisville.
To December salary, Secretary.

December 23. Voucher Check No. 50 $ 100.00

TO DR. L. H. SOUTH, Louisville.
To Dec. salary, Business Manager.

December 23. Voucher Check No. 51 $ 50.00

EDITH LANDRUM, Louisville.
To December salary, Bookkeeper.

December 23. Voucher Check No. 52 $ 38.33

ELVA GRANT, Louisville.
To December salary, Bookkeeper.

December 23. Voucher Check No. 53 $ 150.00

FRED FORCH, Attorney, Louisville.
To services January 1 to July 1, 1921.

December 23. Voucher Check No. 54 $ 14.40

F. V. CARGILL, Chicago, Ill.
Commission in advance.
Columbus Rural Rest Home.

December 23. Voucher Check No. 55 $ 10.00

W. D. GATHEL & SONS, Louisville.
To Kodak finishing.

December 23. Voucher Check No. 56 $ 125.00

JOHN D. ATKINSON, Louisville.
For services rendered in suit of Rogers vs. W. C. Martin.

December 23. Voucher Check No. 57 .... $ 625.15

THE TIMES JOURNAL PUBLISHING COMPANY, Bowling Green, Ky.

To 1,000 letter heads and 1,000 envelopes, Pres.	$ 10.50
To 500 letter heads and 500 envelopes, Vice-Pres.	6.50
To 250 letter heads and 250 envelopes, Vice-Pres.	4.25
To 25 letter heads and 250 envelopes, Vice-Pres.	4.25
To 25 letter heads and 250 envelopes, Vice-Pres.	4.25
To 500 letter heads and 500 envelopes Treas.	6.50
To 3,000 letter heads Secretary	12.00
To 500 letter heads and 500 envelopes 1st District	6.50
To 500 letter heads and 500 envelopes 3d District	6.50
To December Issue 2,200, 112 pages	340.00
To 20 per cent added	68.00
To Extra cost paper	105.40
To Catalogue envelopes	11.50
To 22 changes	4.40
To printing envelopes	2.20
To difference in setting tabular matter in 6 point	32.40
	$ 625.15

January 31. Voucher Check No. 58 .... $ 150.00

DR. A. T. McCORMACK, Louisville.
To salary Secretary.

January 31 Voucher Check No 59 .... $ 138.00

DR. L. H. SOUTH, Louisville.

To expenses as Business Manager	$ 38.00
To January salary as Business Manager	100.00

January 31. Voucher Check No. 60 .... $ 50.00

ELVA GRANT.
To January salary, bookkeeper.

January 31. Voucher Check No. 61 .... $ 25.00

CROWLEY MAGAZINE CO.
To subscription account.

January 31. Voucher Check No. 62 .... $ 8.18

BUSH-KREBS CO.
To 1 cut.

January 31. Voucher Check No. 63 .... $ 25.00

B. C. MORGAN, Act. P. M.
To postage on Journal.

January 31. Voucher Check No. 64 .... $ 170.00

DR. J. H. PARKER.
To settlement o fsuit, Gordon Frye vs. J. H. Parker.

January 31. Voucher Check No. 65 .... $ 200.00

E. B. ANDERSON, Attorney.
To settlement of suit Dr. J. F. Brown vs. Hoover & Hoover.

January 31. Voucher Check No. 66 .... $ 29.16

WESTERN UNION TELEGRAPH CO.
To telegrams.

January 31. Voucher Check No. 67 .... $ 64.35

THE PENDENNIS CLUB.
Dinner for 45 Medical Association Officers, one-half charge.

January 31. Voucher Check No. 68 .... $ 534.55

THE TIMES JOURNAL PUBLISHING CO.

To 200 letter heads and 200 enevlopes, Sec. Eye, Ear, etc.	$ 4.25
To Jan. Issue 112 pages, 2,200	340.00
To 20 per cent added	68.00
To Extra cost of paper	105.40
To catalogue envelopes	11.50
To printing envelopes	2.20
To 16 changes	3.20

January 31. Voucher Check No. 69 .... $ 305.25

JOHN E. KANE,
To settlement in full, fee case of Doublin vs. Meshew.

January 31. Voucher Check No. 70 .... $ 150.00

FRED FORCHT, Attorney.
To services rendered 6|1|21-1|1|22.

January 31. Voucher Check No. 71 .... $ 46.50

DR. E. F. MASON.
To settlement in full for case of Dr. E. F. Mason, vs. G. H. Baskett.

January 31. Voucher Check No. 72 .... $ 6.06

DR. JOHN J. MOREN.
To expense at meeting at Lexington.

January 31. Voucher Check No. 73 .... $ 19.82

DR. W. O. EATON.
To expense at meeting at Lexington.

January 31. Voucher Check No. 74 .... $ 9.06

DR. R. HAYES DAVIS.
To expenses at meeting at Lexington.

January 31. Voucher Check No. 75 .... $ 4.96

DR. W. H. TAULBEE.
To expenses at Lexington meeting.

January 31. Voucher Check No. 76.......................$ 23.56
DR. W. L. TYLER.
To expenses at Lexington meeting.

January 31. Voucher Check No. 77.......................$ 37.75
DR. V. A. STILLEY.
To expenses at Lexington meeting.

January 31. Voucher Check No. 78.......................$ 7.50
DR. W. E. GARDNER.
To expenses at Lexington meeting.

January 31. Voucher Check No. 79.......................$ 7.56
DR. D. Y. KEITH.
To expenses at Lexington meeting.

January 31. Voucher Check No. 80.......................$ 6.30
DR. J. C. FURNISH.
To expenses at Lexington meeting.

January 31. Voucher Check No. 81.......................$ 24.86
DR. W. H. STROTHER.
To expenses at Lexington meeting.

January 31. Voucher Check No. 82.......................$ 13.14
DR. F. EDWARDS.
To expenses at Lexington meeting.

January 31. Voucher Check No. 83.......................$ 13.96
DR. OSCAR ALLEN.
To expenses at Lexington meeting.

January 31. Voucher Check No. 84.......................$ 5.04
DR. A. S. ROBERTSON.
To expenses at Lexington meeting.

January 31. Voucher Check No. 85.......................$ 4.47
DR. M. M. PRICE.
To expense at Lexington meeting

January 31. Voucher Check No. 86.......................$ 12.96
DR J. W. NOLAN.
To expenses to Lexington meeting from Harlan.

January 31. Voucher Check No. 87.......................$ 6.06
DR. G. A. HENDON.
To expenses to Lexington meeting.

January 31. Voucher Check No. 88.......................$ 13.68
DR. J. C. SPARKS.
To expenses to Lexington meeting.

January 31. Voucher Check No. 89.......................$ 9.12
DR. D. E. McCLURE.
To expenses to Lexington meeting.

January 31. Voucher Check No. 90.......................$ 6.06
DR. E. L. HENDERSON.
To expenses at Lexington meeting.

January 31. Voucher Check No. 91.......................$ 4.78
DR. A. W. WALDEN.
To expenses to Lexington meeting.

January 31. Voucher Check No. 92.......................$ 17.86
DR. CHAS M. GOWER.
To expenses at Lexington meeting.

January 31. Voucher Check No. 93.......................$ 2.96
DR. O. F. HUME.
To expenses at Lexington meeting.

January 31. Voucher Check No. 94.......................$ 14.22
DR. A. LIGON.
To expenses at Lexington meeting.

January 31. Voucher Check No. 95.......................$ 30.50
DR. CHAS. HUNT.
To expenses at Lexington meeting.

January 31. Voucher Check No. 96.......................$ 13.51
MAYME SULLIVAN.
To expenses at Lexington meeting.

January 31. Voucher Check No. 97.......................$ 32.85
DR. W. E. GARY.
To expenses at Lexington meeting.

January 31. Voucher Check No. 98.......................$ 35.86
DR. W. S. SANDBACK.
To expenses at Lexington meeting.

February 6. Voucher Check No. 99.......................$ 198.04
E .T. SCHMITT, P. M.
To 6M. No. 5 stamped envelopes at $21.92 M..........$ 131.52
To 4M No. 8 stamped envelopes at $22.88 M.......... 91.52

Total ....$ 223.04
Less amount deposited by Miss Sullivan 25.00

Net ....$ 198.04

February 6. Voucher Check No. 100 .... $ 25.00
MAYME SULLIVAN, Louisville.
To stationery—amount deposited for envelopes.

February 28. Voucher Check No. 101 .... $ 150.00
DR. A. T. McCORMACK, Louisville.
To February salary Secretary.

February 28. Voucher Check No. 102 .... $ 118.73
DR. L. H. SOUTH, Louisville.
To Feb. salary, Business Manager .... $ 100.00
To expense, Indianapolis 18.73

February 28. Voucher Check No. 103 .... $ 50.00
ELVA GRANT.
To February salary, bookkeeper.

February 28. Voucher Check No. 104 .... $ 18.00
THE FRANKLIN PRINTING CO.
To 4 M. letter heads, 8 1-2 x 11.

February 28. Voucher Check No. 105 .... $ 43.44
E. T. SCHMITT, P. M.
To stamps.

February 28. Voucher Check No. 106 .... $ 58.50
HARRIETT DeYOUNG.
To reporting meeting of the House of Delegates at Lexington, Lafayette Hotel 1|21.22 .... $ 10.00
To transcribing report, 1 original and 1 carbon copy, 92 pages 48.50

February 28. Voucher Check No. 107 .... $ 2.70
WESTERN UNION TELEGRAPH CO.
To telegrams.

February 28. Voucher Check No. 108 .... $ 506.60
TIMES JOURNAL PUBLISHING CO.
To February issue, 98 pages .... $ 305.00
20 per cent added 61.00
Extra cost of paper 96.00
Envelopes 11.50
Print cost 2.20
9 changes .... 4.90 $ 480.60
To 1,000 list of physicians and 1,000 annual report blanks (2 sides) 26.00

February 28. Voucher Check No. 109 .... $ 25.00
D. I. DAY.
To fee in case of Dr. Greensbury, Letcher Co.

February 28. Voucher Check No. 110 .... $ 19.38
DR. B. W. SMOCK.
To expense at Lexington meeting.

February 28. Voucher Check No. 111 .... $ 6.50
DR. V. A. STILLEY.
To balance of expense at Lexington meeting.

February 28. Voucher Check No. 112 .... $ 12.96
DR. J. W. NOLAN.
To expense from Lexington meeting to Harlan.

February 28. Voucher Check No. 113 .... $ 8.25
DR. W. B. McCLURE.
To expense at Louisville meeting.

February 28. Voucher Check No. 114 .... $ 6.81
DR. LEON L. SOLOMON,
To expense at Lexington meeting.

February 28. Voucher Check No. 115 .... $ 14.15
DR. JETHRA HANCOCK.
To expense at Lexington meeting.

February 28. Voucher Check No. 116 .... $ 67.20
KENTUCKY TRACTION & TERMINAL CO.
To special car, 1-21-21 from Frankfort to Lexington 48 passengers at $1.40 each.

March 7. Voucher Check No. 117 .... $ 150.97
WESTERN UNION TELEGRAPH CO.
To telegrams, January 6 to 31, 1922.

March 7. Voucher Check No. 118 .... $ 212.47
FRANKFORT HOTEL CO.
To expense incurred in Frankfort in interest of Medical Practice bill, 1-15-22--2-12-22.

March 7. Voucher Check No. 119 .... $ 169.80
THE LAFAYETTE HOTEL CO.
January 21—49 dinners at $1.50 .... $ 73.50
January 21—42 dinners at $1.50 .... 63.00
January 21— 4dinners at $1.50 .... 6.00
January 21—9 lunches at .75 .... 6.75
Room 350 .... 3.50
Room 350—For'd 1190 at $1.65 .... 17.05

March 7. Voucher Check No. 120 .... $ 150.00
MAYME SULLIVAN.
Re-imbursement for stamps bought.

March 31. Voucher Check No. 121 .... $ 150.00
DR. A. T. McCORMACK, Louisville.
To March salary, Sec'y.

March 31. Voucher Check No. 122		$ 130.64
DR. L. H. SOUTH, Louisville.		
To expenses to Frankfort 3-1-22—3-17-22.	$ 16.64	
To expenses to Lexington 3-20-22—3-22-22	14.00	
March salary, Business Manager	100.00	
March 31. Voucher Check No. 123		$ 100.00
ELVA GRANT, Louisville.		
To March salary, bookkeeper.		
March 31. Voucher Check No. 124		$ 75.00
To fee in case of Dr. H. J. Farbach vs. Ben Wolf.		
FRED FORCHT, Attorney, Louisville.		
March 31. Voucher Check No. 125		$ 12.98
WESTERN UNION TELEGRAPH CO., Louisville.		
To tlegrams.		
March 31. Voucher Check No. 126		$ 309.10
THE FRANKFORT HOTEL CO.		
To expenses incurred in Frankfort in interest of Medical Practice bill, 2-12-22--3-13-22.		
March 31. Voucher Check No. 127		$ 4.75
THE BOOK SHOP BINDERY, Chicago, Ill.		
To binding 1 Journal A. M. A.	$ 2.50	
To binding 1 Kentucky Medical Journal	2.25	
March 31. Voucher Check No. 128		$ 504.95
THE TIMES JOURNAL JUBLISHING CO.		
To March issue 2,200, 96 pages, Jour.	$ 300.00	
Difference cost paper	127.05	
21 changes	4.20	
Printing envelopes	2.20	
Envelopes	11.50	
20 per cent added	60.00	
April 29. Voucher Check No. 129		$ 367.45
DR. A. T. McCORMACK.		
To expenses at Frankfort, Feb. Mar. and Apr.	$ 217.45	
To April salary, Sec'y.	150.00	
April 29. Voucher Check No. 130		$ 100.00
DR. L. H. SOUTH.		
To April salary, Business Manager.		
April 28. Voucher Check No. 131		$ 100.00
ELVA GRANT.		
To April salary, bookkeeper.		
April 29. Voucher Check No. 132		$ 2.40
MEFFERT EQUIPMENT CO.		
To 1-632 J. sheet holder	.90	
To 1-638 J. Sheet holder	1.60	
	$ 2.50	
Less 10 per cent	25	
	$ 2.25	
3 pad paper for 632 holder	.15	
Total	$ 2.40	
April 29. Voucher Check No. 133		$ 9.30
BUSH-KREBS CO.		
To 3 No. 32 Calendar cuts	$ 2.88	
1 sq. H. T. medical picture cut	6.42	
April 29. Voucher Check No. 134		$ 2.10
DR. O. R. KIDD.		
To making and attesting copy of indictment vs. Dr. M. E. Thomas.		
April 29. Voucher Check No. 135		$ 5.00
MARTHA F. LOVELL.		
To reporting case of W. W. Burton vs. You.		
April 29. Voucher Check No. 136		$ 150.00
TAYLOR, EVANS & SPARKS.		
To fee in case of Moorman Burton vs. You.		
April 29. Voucher Check No. 137		$ 4.50
F. K. KAVANAUGH.		
To 3 Kentucky Directories.		
April 29. Voucher Check No. 138		$ 9.06
DR. H. B. SCOTT.		
To Lexington meeting expenses.		
April 29. Voucher Check No. 139		$ 557.70
TIMES JOURNAL PUBLISHING CO.		
To 500 extra envelopes	$ 2.88	
2,300 April Issue, 112 pages	355.00	
20 per cent added	71.00	
Extra cost of paper	110.10	
2,300 envelopes	12.02	
Printing envelopes	2.30	
22 changes	4.40	
Total	$ 557.70	

May 31. Voucher Check No. 140		$ 150.00
DR. A. T. McCORMACK, Louisville, Ky.		
To May salary, Secretary.		
May 31. Voucher Check No. 141		$ 110.76
DR. L. H. SOUTH, Louisville.		
To expenses to Leitchfield.	$ 10.76	
May salary, Business Manager	100.00	
May 31. Voucher Check No. 142		$ 100.00
ELVA GRANT, Louisville.		
To May salary, Bookkeeper.		
May 31. Voucher Check No. 143		$ 25.15
BUSH-KREBS CO., Louisville.		
To 6 cuts.		
May 31. Voucher Check No. 144		$ 14.00
LOUISVILLE RAILWAY CO.		
To 2 chartered cars, Campbell & Bdwy. to 6th & Liberty—no return.		
May 31. Voucher Check No. 145		$ 5.60
MAYME SULLIVAN, Louisville.		
To expenses to Paducah.		
May 31. Voucher Check No. 146		$ 726.50
THE TIMES JOURNAL PUBLISHING CO.		
To 3, 250 May issue, 112 pages	$ 471.25	
20 per cent added	94.25	
Envelopes	17.25	
Print envelopes	3.20	
16 changes	3.20	
Extra cost of paper	125.85	
Tabulation to 6 point	11.50	
May 31. Voucher Check No. 147		$ 150.00
GUS BROWN		
To fee in case of Dr. J. G. Hale.		
June 2. Voucher Check No. 148		$ 50.00
BETTIE C. MORGAN, Acting P. M. (Bowling Green)		
To postage deposit.		
June 30. Voucher Check No. 149		$ 164.75
DR. A. T. McCORMACK, Louisville, Ky.		
To June salary	$ 150.00	
To expenses to St. Louis	14.75	
June 30. Voucher Check No. 150		$ 135.53
DR. L. H. SOUTH, Louisville, Ky.		
To June salary	$ 100.00	
Expense to Bowling Green	35.53	
June 30. Voucher Check No. 151		$ 75.00
ELVA GRANT, Louisville, Ky.		
To June salary, bookekeper.		
June 30. Voucher Check No. 152		$ 150.00
JOHN TODD, Shelbyville, Ky.		
To Attorney Fee in case of D. C. Baker vs. C. W. of Kentucky.		
June 30. Voucher Check No. 153		$ 28.55
JOHN M. KEMP, Clerk Hickman Circuit Court.		
To Court costs in case of Arthur A. Burns vs. Dr. Fred Beeler.		
June 30. Voucher Check No. 154		$ 22.45
GAYLORD C. HALL, M. D.		
To expense, Franklin Printing Co.	$ 8.30	
Stamps	3.00	
Clips	.50	
Letter File	.65	
Stenographer	10.00	
Total	$ 22.45	
June 30. Voucher Check No. 155		$ 100.00
FRED FORCHT, Attorney.		
To fee in cases, Eva Ford vs. Dr. H. B. Scott and Paul Webster vs H. B. Scott.		
June 30. Voucher Check No. 156		$ 50.00
PICKLESIMER & STEELE		
To Attorney Fee, Commonwealth vs. Mathews	$ 25.00	
To Attorney Fee, Commonwealth vs. Irvin	25.00	
June 30. Voucher Check No. 157		$ 489.48
TIMES-JOURNAL PUBLISHING CO.		
To June Journal, 2,500, 86 pages	$ 305.00	
Difference in cost of paper	97.00	
20 per cent added	61.00	
Printing 2,500 envelopes	2.50	
2,500 envelopes	13.88	
18 changes	3.60	
500 letter heads and 500 envelopes	6.50	
June 30. Voucher Check No. 158		$ 2.34
BUSH-KREBS CO.		
To 1 cut.		
July 31. Voucher Check No. 159		$ 162.94
DR. A. T. McCORMACK, Louisville.		
To traveling expense	$ 12.94	
To July salary, Secretary	150.00	

July 31. Voucher Check No. 160			$ 106.50
DR. L. H. SOUTH, Louisville.			
To expense to White Mills	$ 6.50		
To July salary, Business Manager	100.00		
July 31. Voucher Check No. 161			$ 75.00
ELVA GRANT, Louisville.			
To July salary, bookkeeper.			
July 31. Voucher Check No. 162			$ 131.52
LUDLOW F. PETTY, P. M., Louisville.			
To 6 M. No. 5 stamped Env. at $21.92 per M.			
July 31. Voucher Check No. 163			$ 250.00
MILBY & HENDERSON, Greenburg, Ky.			
To Attorney fee in case of Gardner vs. Dr. Taylor.			
July 31. Voucher Check No 164			$ 9.55
BRUCE YOUNG, Cir. C. Clerk, Greenville, Ky.			
Cost in case W. M. Burton vs. Dr. Harry Tyldsley.			
July 31. Voucher Check No. 165			$ 35.00
JUDGE JAS. M. GILBERT, Pineville, Ky.			
To Attorney fee ii case of McKecnan vs. Dr. B. F. Giannini.			
July 31. Voucher Check No. 166			$ 17.39
ADDRESSOGRAPH CO., Chicago.			
To counter and 100 Buff cards cut.			
July 31. Voucher Check No. 167			$ 29.42
BUSH-KREBS CO., Louisville.			
To 7 cuts.			
July 31. Vouched Check No. 168			$ 454.05
TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
To July issue 2,300, 108 pages	$ 342.36		
To difference cost of paper	110.10		
20 per cent added	68.47		
To Printing 2,300 envelopes	2.30		
To 2,300 envelopes	12.02		
To 16 changes	3.20		
Change 10,481 ems to 6 point	5.24		
Total	$ 543.69		
Less delay on July issue	50.00	$ 493.69	
Shortage 50 July Jour. at 236	$ 11.80		
Shortage 50 July Jour. at .236	25.09		
By 11 errors June Jour. at 25 cents		39.64	
July 31. Voucher Check No. 169			$ 25.00
LUDLOW F. PETTY, P. M., Louisville.			
To stamps.			
July 31. Voucher Check No. 170			$ 77.75
ETHEL B. KRIEGER, Louisville.			
To securing 12 ads for Journal. Amount $311.00, 25 per cent commission, $77.75.			
August 31. Voucher Check No. 171			$ 150.00
DR. A. T. McCORMACK, Louisville.			
To August salary, Secretary.			
August 31. Voucher Check No. 172			$ 112.50
DR. L. H. SOUTH, Louisville.			
To August salary, Business Manager	$ 100.00		
To expense to Meade County	12.50		
August 31. Voucher Check No. 173			$ 75.00
ELVA GRANT, Louisville.			
To August salary, bookkeeper.			
August 31. Voucher Check No. 174			$ 3.68
BUSH-KREBS CO.			
To 1 cut.			
August 31. Voucher Check No. 175			$ 5.00
MAYME SULLIVAN, Louisville.			
To reimbursement for trunk bought for records to take to Kentucky State Medical Meeting.			
August 31. Voucher Check No. 176			$ 482.90
TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
To 1,000 Envelopes, Office of Counselor	$. 4.50		
To 1,000 Floor Space	6.50		
To Commercial Exhibit	5.00		
To ap, for space	6.00		
To August issue, 2,200, 96 pages	300.00		
To difference in cost of paper	90.35		
To 20 per cent added	60.00		
To 2,200 envelopes	11.50		
To printing envelopes	2.20		
To 18 changes	3.60		
Total	$ 489.65		
Less 27 errors at 25 cents each	6.75		
	$ 482.90		
TOTAL			$19,153.61

COMMERCIAL EXHIBITS

Each year a brochure containing a floor plan, price list and description of the exhibit hall is mailed to reputable firms whose products have been approved by the Council of Pharmacy and Chemistry of the A. M. A., and we have secured many valuable exhibits for this meeting. A description and space number of each firm and manufacturer are given.

We take this opportunity to urge the members to visit these exhibits and show an appreciation by patronizing them, remembering tha tthey contribute toward defraying the expenses of our annual meeting.

Pope Sanitarium, Louisville

Booth 1.—The Pope Sanatorium will make an exhibit showing the nature and kind of clinical examinations made by them for diagnosis in neurology and internal medicine. They will also exhibit a scheme showing the different measures and facilities they have for the treatment of such cases, and the value of such treatments. Some very old and interesting prints and engravings of old medical and hydrotherapeutic Masters will be shown.

Louisville, Ky., September 5, 1922.

Theodore Tafel, Louisville.
Booth 2-3.

We expect to make the regular display, that is to have all the latest Surgical Instruments having a complete line of these as well as accessaries etc. Mr. Carl G. Tafel, himself will be in charge of the display.

The Wm. Meyer Co. Chicago

Booth 29.—We expect to show at the Paducah meeting our Klinoscopic Unit, which is built for the use of the interest and diagnostician for routine, chest, stomach and gastro-intestinal work, as well as general bone work. This instrument affords the facilities for doing Floroscopic work in all positions from the horizontal to the upright and is a self-contained Unit. We will also have our latest imporved type Bedside Unit for hospital and office practice and is particularly adapted for the general practicioner. We will have a display of intensifying screens and other accessories also.

Mellin's Food Company, Boston

Booth 27—No argument is needed to emphasize the advantage to the physician of a thorough knowledge of any product that he deems worthy worthy of frequent or only occasional use in the work of his profession and representatives of this Company will make a special egort to bring out clearly everything that has a bearing upon the source, nature and amount of the nutritive elements present in Mellin's Food in order that physicians who are not perfectly familiar with Mellin's Food may have an opportunity to acquire this information.

Keasbey and Mattison Co., Ambler, Pa.

Booth—"The Keasbey & Mattison Company of Ambler, Pa., will display a line of their popular Granular Effervescent Products at the Kentcky State Medical Association and will especially display the famous Alkalithia which has been so much in favor with the Medical Professors for nearly fifty years.

These will be shown together with a line of Magnesia Products, as well as a few Asbestos products which this company manufacture.

The exhibit will be in charge of P. P. Mauk, M.D., who is an expert in this line o fwork and who cordially invites all the, doctors who are in attendance to pay us a visit and register with us."

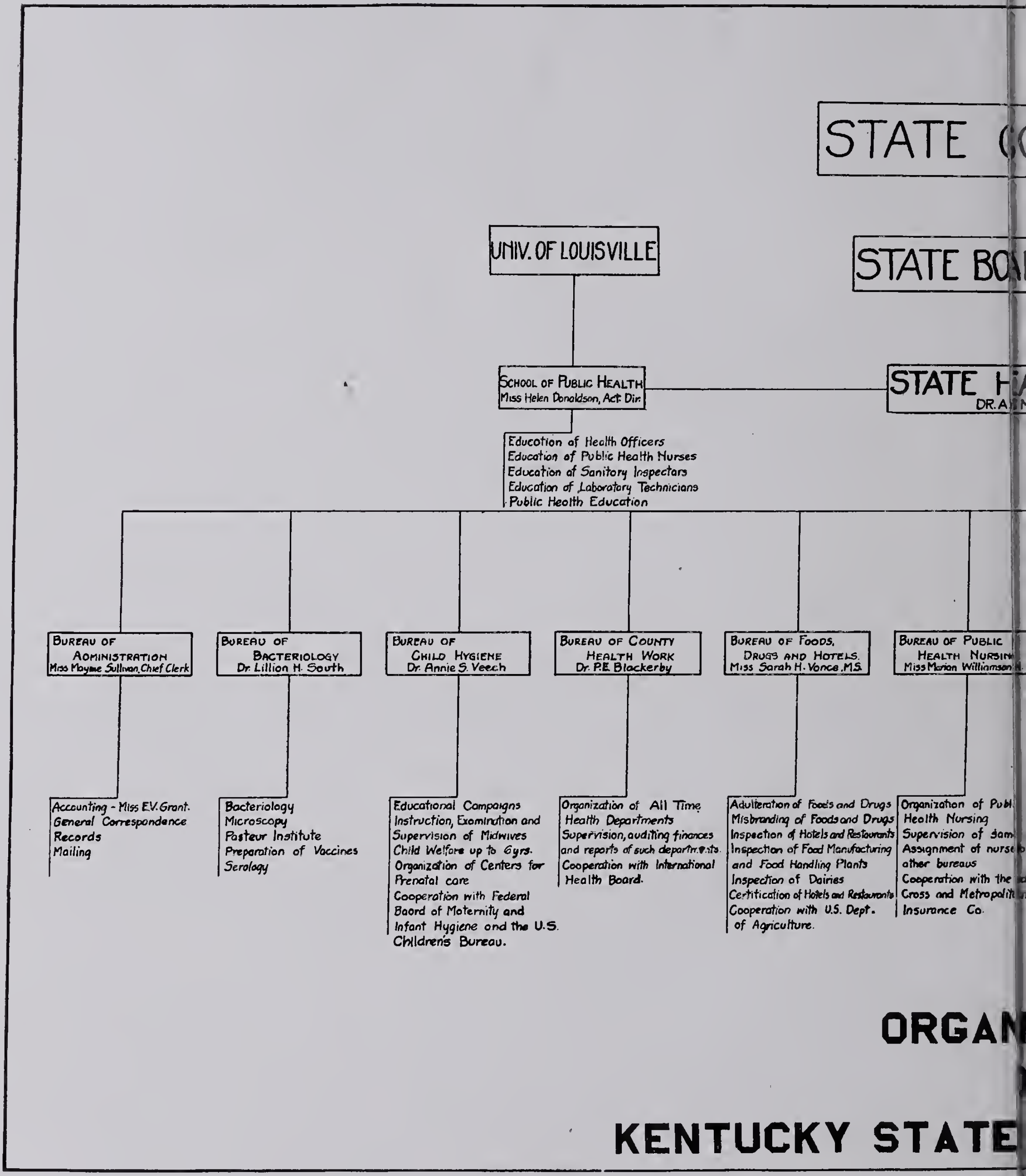
The Dick X-Ray Company

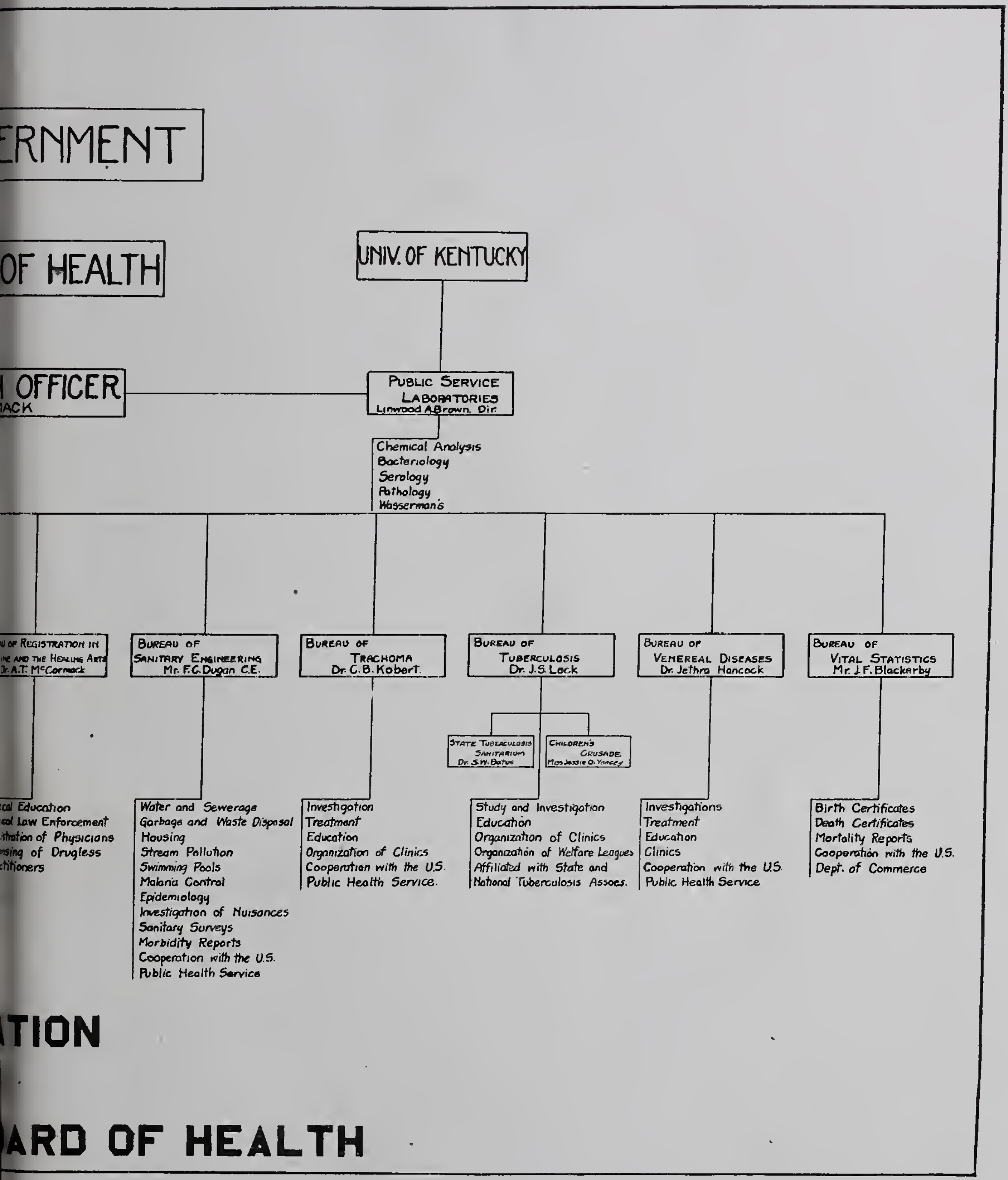
Booth 8. The Dick X-Ray Company of Louisville wish to announce to the Medical Profession that they will have their initial exhibit at the October Meeting of the K. M. A. The exhibit will be unique in that it will be a Complete X-Ray Laboratory.

The Dick Selection of a Complete X-Ray Laboratory for radiography and fluoroscopy is both practical and efficient, as proven by years of experience. This will be of value to prospective, as well as present users of X-Ray Equipment.

A. S. Aloe Company, St. Louis

Booth 4. Every doctor should spend at least a few minutes in the booth of the A. S. Aloe Company of St. Louis. They will have on exhibit their two leading specialties, the Lightning Electro-Therapeutic Cabinet and Spencer 18-H Special Microscope, as well as a complete line of apparatus and instruments of interest to every physician. By means of their "Rental Purchase Plan" terms extending from eight to twelve months are made by this firm on all items of their extensive line.


STATE C
UNIV. OF LOUISVILLE
STATE BO
SCHOOL OF PUBLIC HEALTH
Miss Helen Donaldson, Act. Dir.
STATE H
DR. A
Education of Health Officers
Education of Public Health Nurses
Education of Sanitary Inspectors
Education of Laboratory Technicians
Public Health Education
BUREAU OF ADMINISTRATION
Miss Mayme Sullivan, Chief Clerk
BUREAU OF BACTERIOLOGY
Dr. Lillian H. South
BUREAU OF CHILD HYGIENE
Dr. Annie S. Veech
BUREAU OF COUNTY HEALTH WORK
Dr. P.E. Blackerby
BUREAU OF FOODS, DRUGS AND HOTELS.
Miss Sarah H. Vance, M.S.
BUREAU OF PUBLIC HEALTH NURSIN
Miss Marion Williamson
Accounting - Miss E.V. Grant.
General Correspondence
Records
Mailing
Bacteriology
Microscopy
Pasteur Institute
Preparation of Vaccines
Serology
Educational Campaigns
Instruction, Examination and
Supervision of Midwives
Child Welfare up to 6 yrs.
Organization of Centers for
Prenatal care
Cooperation with Federal
Board of Maternity and
Infant Hygiene and the U.S.
Children's Bureau.
Organization of All Time
Health Departments
Supervision, auditing finances
and reports of such departments.
Cooperation with International
Health Board.
Adulteration of Foods and Drugs
Misbranding of Foods and Drugs
Inspection of Hotels and Restaurants
Inspection of Food Manufacturing
and Food Handling Plants
Inspection of Dairies
Certification of Hotels and Restaurants
Cooperation with U.S. Dept.
of Agriculture.
Organization of Publ
Health Nursing
Supervision of sam
Assignment of nurse
other bureaus
Cooperation with the
Cross and Metropolit
Insurance Co.
ORGAN
KENTUCKY STATE


ERNMENT
OF HEALTH
UNIV. OF KENTUCKY
OFFICER
ACK
PUBLIC SERVICE LABORATORIES
Linwood A. Brown, Dir.
Chemical Analysis
Bacteriology
Serology
Pathology
Wasserman's
U OF REGISTRATION IN
INE AND THE HEALING ARTS
Dr. A.T. McCormack
cal Education
cal Law Enforcement
itration of Physicians
nsing of Drugless
ctitioners
BUREAU OF SANITARY ENGINEERING
Mr. F.G. Dugan C.E.
Water and Sewerage
Garbage and Waste Disposal
Housing
Stream Pollution
Swimming Pools
Malaria Control
Epidemiology
Investigation of Nuisances
Sanitary Surveys
Morbidity Reports
Cooperation with the U.S.
Public Health Service
BUREAU OF TRACHOMA
Dr. C.B. Kobert
Investigation
Treatment
Education
Organization of Clinics
Cooperation with the U.S.
Public Health Service.
BUREAU OF TUBERCULOSIS
Dr. J.S. Lock
STATE TUBERCULOSIS SANITARIUM
Dr. S.W. Bates
CHILDREN'S CRUSADE
Miss Jessie O. Yancey
Study and Investigation
Education
Organization of Clinics
Organization of Welfare Leagues
Affiliated with State and
National Tuberculosis Assocs.
BUREAU OF VENEREAL DISEASES
Dr. Jethro Hancock
Investigations
Treatment
Education
Clinics
Cooperation with the U.S.
Public Health Service
BUREAU OF VITAL STATISTICS
Mr. J.F. Blackerby
Birth Certificates
Death Certificates
Mortality Reports
Cooperation with the U.S.
Dept. of Commerce
TION
ARD OF HEALTH

E. R. Squibb and Sons, New York

Booth 5-6. The Squibb Laboratories will as usual occupy a prominent place among the commercial exhibits this year, and their display will be materially different from that shown in previous years.

It will be devoted primarily to showing in a graphic way, the production of some of their more important, newer products. As may be expected from the Squibb Laboratories, these will be of actual scientific interest to the physician.

The Allergens which are now arousing more interest than almost any other group of preparations both as diagnostic and curative aents, will occupy a prominent place. An ef- effort will be made to show brifly, the manufacture of Thyroxin, the active principle of the thyroid gland, isolated by Kendall. An effort will be made to show briefly, the manufac- the manufacture of Arsphenamine, and the advantages possessed by the ready-to-use solution over other arsenical products.

Not the least of the items of interest will be the new Squibb chloroform containers, namely, the dropper bottle package and the vacuum ampul, both of special interest at the present time due to the recent difficulty experienced with Army chloroform deteriorating in tin containers.

It may be interesting to our readers to know that Dr. Edward R. Squibb, immediately after his resignation as a naval surgeon and head of the Naval laboratories and supply depot, came to Louisville and actually organized and started his first laboratory here.

Horlick Malted Milk, Co., Racine, Wis.

Booth 28. The Horlick's Malted Milk Co., Racine, Wisconsin, invites the attention of all to their space No. 28, where the well-known pioneer products, "Horlick's" the Original Malted Milk, in powder and tablet forms, and Horlick's Food will be intesestingly presented. The representative in charge will explain the advantages of the "Horlick's ' products for medical and surgical cases. The X-Ray uses of Horlick's Malted Milk will also be featured. New printed matter anr samples will be supplied, and your inquiries and discussions invited.

Medical Protective Company, Fort Wayne, Indiana.

Booth 16. "The Medical Protective Company of Fort Wayne, Indiana, will occupy Booth No. 16, making its initial appearance at our yearly meeting. As the originators of professional protection, and having spent over twenty-three years in doing this one thing right, coupled with the fact that the Company is at this time the only organization in the country exclusively engaged in this line, the representative of the Company at this booth will be very able to discuss any of the malpractice liabilities and hazards incurred by the profession, from the standpoint of an expert and specialist. The exhibit will be in charge of Mr. D. H. Bixler who has been with the Company since its conception and will be able to answer any questions propounded."

The Chas. H. Phillips Chemical Co.
New York, N. Y.

"The Chas. H. Phillips Chemical Co., of New York and London, exhibiting Phillips' Digestible Cocoa, rich, savoy, easily digested. Maker milk palitable to those who do not relish plain milk. Phillips' Milk of Magnesia, the perfect antacid and laxative, chemically pure Mg. No. 2 Os. .

Victor X-Ray Corporation, Chicago, Ill.

Booth 31. Chief among the apparatus which we intend exhibiting will be the new Victor Stabilized Mobile X-Ray Unit, a recent Victor achievement which is radically different from any type of X-Ray apparatus offered to the profession heretofore. The most important feature of this new outfit is the Stabilizer which does away with the disadvantages due to line fluctuations and in addition to this an auto transformer control which provides for 26 separate control steps. There is also a circuit breaker which means protection to the tube, the operator and the patient.

We will also have on display a Victor Kearsley Stabilizer the advantages of which are undoubtedly familiar to the large majority of X-Ray users throughout the country.

In addition to the above it is quite possible that we will also have the Victor Model 9 Roentgen Table which unit has met with wide acceptance by physicians who have long felt the need of a light, compact and truly serviceable unit designed for radiographic and fluroscopic service in either vertical or horizontal positions.

The Victor Potter Bucky Diaphragm will also be at the meeting.

It will surely be worth while for every physician in attendance to carefully inspect the Victor line of equipment.

REPORT OF THE BUSINESS MANAGER

To The House of Delegates.

The usual policy of printing every article, report or material of any description contributed by a member has been pursued and with this issue the last article in the office has been printed.

It has required on an average a 125 page Journal to print the material received for this year while in previous years an 84 to 96 page Journal was sufficient.

Fortunately the advertisements have increased in proportion so that the Journal has been printed and mailed to each member monthly without any expense to the Association, the entire cost of publication and distribution having been borne by our advertisers.

In order to continue the successful financial operation our members must patronize our advertisers and specify their products, all things being equal, when they buy anything in their respective lines.

This year 30,550 copies of the Journal were printed and distributed to the members at a cost of $7,032.94 approximately 20 cents a Journal.

The following table shows the work that is being done by its members through its columns.:

No. of pages of reading matter	892
No of pages of advertisements	358
Editorials	36
Scientific Editorials	13
Original Articles	209
County Society Reports	95
Book Reviews	61
Official Announcements	29
News Items and Comments	20
Discussions	486

COUNTY SOCIETY STATISTICS

The following statistics are given to show the activities of our component societies as published in the Journal.

A perusal of this tabulation will be shown that the county secretaries in many instances are not doing their duty for we are not receiving as many county society reports nor contributions as we should, with the exception of Jefferson, Carlisle, Campbell-Kenton and Daviess counties. No other county has contributions more than two reports or papers.

The Medico-Chirurgical Society has contributed 37 articles the cost of which was paid by that association.

This year every article read before the Jefferson County Medical Association has been published. These papers were exceptional good and have added materially to the value of the Journal.

	Original Articles	Minutes
Adair	0	0
Allen	0	2
Anderson	0	0
Ballard	0	2
Barren	0	1
Bath	0	0
Bell	1	3
Boone	0	0
Bourbon	0	5
Boyd	0	1
Boyle	1	1
Bracken	0	0
Breathitt	1	0
Breckinridge	0	1
Bullitt	0	0
Butler	0	0
Caldwell	0	1
Calloway	0	1
Campbell-Kenton	4	1
Carlisle	11	4
Carroll	0	0
Carter	0	1
Casey	0	0
Christian	1	3
Clark	2	2
Clay	0	0
Clinton	0	1
Crittenden	0	0
Cumberland	0	2
Daviess	0	2
Elliott	0	0
Estill	0	0
Fayette	2	1
Fleming	1	5
Floyd	0	0
Franklin	1	2
Fulton	0	1
Gallatin	0	0
Garrrard	0	0
Grant	0	0
Graves	1	0
Grayson	0	0
Green	0	1
Greenup	0	0
Hancock	0	0
Hardin	1	2
Harlan	0	2
Hart	0	0
Harrison	1	4
Henderson	0	0
Henry	0	3
Hickman	0	1
Hopkins	0	0
Jackson	0	0
Jefferson	61	2
Jessamine	0	1
Johnson	0	0
Johuson	0	0
Knott	0	0
Knox	0	2
Lanre	0	1
Laurel	0	1
Lawrence	0	0
Lee	0	0
Leslie	0	0
Letcher	0	2
Lewis	0	1
Lincoln	0	1
Livingston	1	1
Logan	1	1
Logan	2	1
Lyon	0	2
McCracken	1	1
McCreary	0	2
McLean	0	0
Madison	3	1
Magoffin	0	0
Marion	0	0
Marshall	0	0
Martin	0	0
Mason	0	0
Meade	0	0
Menifee	0	0
Mercer	0	1
Metcalfe	0	1
Monroe	1	0
Montgomery	0	1
Morgan	0	0
Muhlenberg	1	0
Nelson	0	0
Nicholas	0	0
Ohio	0	2
Oldham	0	2
Owen	0	1
Owen	0	1
Owsley	0	0
Pendleton	2	1
Perry	0	2
Powell	0	0
Pulaski	0	1

Robertson	0	0
Rockcastle	0	0
Rowan	0	1
Russell	0	4
Scott	1	0
Shelby	0	2
Simpson	0	0
Spencer	0	0
Taylor	1	2
Todd	0	1
Trigg	0	0
Trimble	0	0
Union	0	0
Warren	3	2
Washington	0	1
Wayne	0	0
Webster	0	0
Whitley	0	1
Wolfe	0	0
Woodford	0	0

INDEX

In the December Journal each year a core fully prepared index of each issue is published.

All articles are listed under this leading little word and cross indexed so as to be easily referred to. Each county society report is indexed so that the secretaries can use this means of keeping a permanent record of their meetings and is especially urge every county society to have their Journals bound.

Every doctor who has contributed an original article or taken part in a discussion in his county or the state meeting is indexed under contributions.

Respectfully submitted,

L. H. South.

The Practice of Medicine.—The Practice of Medicine. By A. A. Stevens, M.D., professor of Applied Therapeutics in the University of Pennsylvania; professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania. Octavo of 1,106 pages. Philadelphia and London. W. B. Saunders Company, 1922. Cloth, $7.50 net.

Dr. Stevens' new Practice of Medicine (1,100 octavo pages) is a personal work because the methods detailed are those which Dr. Stevens has himself found to give the desired results in actual practice. Every clinical diagnostic test is carefully given and the numerous diagnostic tables offer an invaluable help to the general practitioner in determining by elimination the nature of the condition he is called upon to treat. More attention is given to the treatment of disease than in any other work of similar size. In most cases, one definite plan of treatment is given, and that the one which Dr. Stevens has found successful. Naturally, reference to the work of other authorities is made, but the book is essentially a summary of Dr. Stevens' thirty-two years of hospital and private practice.

In following Dr. Stevens' new Practice of Medicine, the general practitioner will not be left with a feeling of uncertainty as to the proper course to pursue.

DOWNWARD DISLOCATION OF THE PATELLA*

By Guy Aud, Louisville.

This case is reported because of the relative rarity of downward dislocation of the patella and the paucity of literature on the subject, rather than because of any particular difficulty encountered in reducing the dislocation.

EFFORT OF CASE

G. W., a boy. aged 17, who had been hopping trains for years and had become expert at it, attempted to board a train said to have been moving at a rate of 25 or 30 miles an hour. He secured a firm grip with both hands, but missed his footing and was being dragged along with his legs flexed under him. Realizing that he could not get aboard and that the train was steadily gaining speed, he attempted to save himself by letting go and throwing his body free of the car-wheels. As he fell, severe pain was experienced in the left knee and he was unable to arise. He was immediately carried to the office of Dr. H. R. Nuze, Cecilia, Ky., who diagnosed the dislocation. An anesthetic was administered by Dr. Nuze, and attempt made to reduce the dislocation but this was found impossible without assistance.

On examination at St. Joseph's Infirmary four hours after injury, the leg was in position of almost complete extension with inability to flext or extend it. There was a slight abrasion of the skin about 2 inches above the patella. The knee was greatly swollen and the patient complained of considerable pain, especially when the leg was moved. The patella was firmly fixed and formed an unusual prominence between the femur and the tibia. A roentenogram revealed that the patella had been turned vertically through a right angle, the upper border being engaged between the femur and the tibia. There was no fracture of the patella, but the taut patellar tendon had partially torn loose the tuberosity of the tibia.

Under general anesthesia the dislocation was readily reduced by manipulation. With the thigh over the right shoulder of the operator, the leg was forcibly flexed, and at the same time traction was made on the leg. The patella readily snapped into position, the whole procedure requiring only two or three minutes. An anterior splint wa sapplied. Because of the great amount of swelling and effusion into the joint, extension was applied twelve hours after operation. This was removed at the end of one week, and passive

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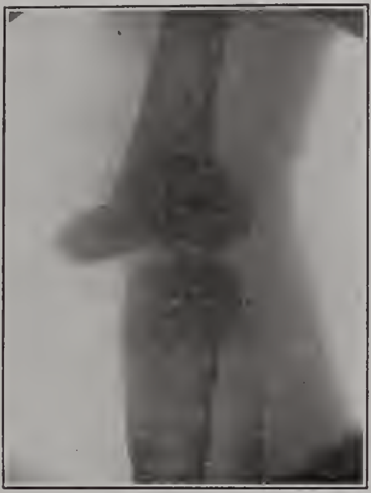
*Reprinted from the Spanish American Edition of the *Journal ofthe A. M. A.*, May 13, 1922, Vol. 78 ,pg. 1457 8.

motion was started. Three weeks after the injury there wa sonly slight swelling, and, with the knee strapped, the patient was able to walk with no discomfort. Examination six weeks later disclosed complete recovery with no limitation of motion.



DR. GUY AUD

COMMENT

Since operation was not resorted to in this case, we can only sepculate as to the character and extent of injury sustained by the joint structures. We know that such a dislocation occurs only when great force has been exerted downward and backward on the patella with the knee flexed. The patella cannot rotate an axis of 90 degrees and engage its upper border under the condyles of the femur without either rupturing the powerful quadraceps extensor tendon or herniating through its posterior surface. The rapid and extensive swelling and effusion would indicate serious injury of the joint structures.

Careful search has failed to reveal an adequate description of this unusual dislocation. Most of the textbooks on surgery make no mention of it, while some merely state that such isolation of the patella is possible, but is secondary to serious injury of the quadriceps tendon and other joint strutures. Perkin's case is the only one reported in the journals or this country in recent years, Rutherfurd of Glasgow reports three cases of his own and four other cases previously reported by Reichel. In all of these cases the leg was held rigid in a position of almost complete extension, probably owing to the tense patella ligament. Open operation was the method employed in reducing all but two, in which cases the patella was dislodged by means of spikes driven into it for traction. In this case we were fortunate in being able to reduce the dislocated patella by manipulation, as described, but one can readily understand that this is not always possible.

1. Perkins, J. W.: Hitherto Underscribed Dislocation of the Patella Endwise, *J. A. M. A.*, 74; 288 (Feb. 7,) 1920.
2. Rutherford, H.: Downward Dislocation of the Patella. *Brit. J. Surg.*, 8: 524 (April) 1921.
Society.

ACCIDENTAL EYE INJURIES—CASE REPORTS.*

By Samuel G. Dabney, Louisville.

I happen to have seen five cases during the last few weeks in which the eyes were injured by accidents of greater or less severity. Three of them were the result of dynamite explosions.

The first patient really belonged to Dr. A. O. Pfingst, but as the accident occurred while he was absent from the city the case fell into my hands. It was an extremely sad case, a boy, aged fourteen, was playing with a dynamite cap, an explosion occurred which entirely destroyed the left eye and the right was so badly injured that it had bare light perception. The left eye was removed immediately; that is, what remained of it, and the right eye was preserved, an iridectomy being done for protruding iris. I believe the boy may eventually get some vision in the remaining eye.

The second dynamite case was brought to me by the representative of an insurance company. He had entire loss of slght of one eye from a dynamite explosion and vision in the other was limited to the counting of fingers at a distance of eight or ten feet. There is extensive renteuo-chorvidal injury in left eye and improvement in vision is doubtful. X-ray negative. The right eye is totally blind.

The third dynamite case was sent to me three days ago. A doctor in the country called me over long distance a few days before extensive retino-choroidal injury in left eye tained a serious eye injury from a dynamite explosion, and on my advice he immediately removed one eye. The other eye has vision of 20-40 and I believe further improvement will occur. This eye had an abrasion of the cornea, severe contusion and hemorrhage into the vitreus. The vitreus has now become nearly clear and he has useful vision. It seems a strange coincidence that three dynamite cases should come under my observation within two or three weeks.

The other two cases are traumatic in origin and may be of some interest. I left the meeting of this society two weeks ago before the essay was head in response to a message from Dr. D. Y. Keith, who was then making a Roentgen-ray examination of a boy brought to me from an adjacent city. He telephoned me that the patient, a boy aged ten years, had a foreign body in his eye about as large as a blackberry seed, that it was situated in the upper and outer portion of the eyeball about one inch posterior to the anterior surface of the cornea. And I want to say, in passing, that Dr. Keith has never yet failed to not only tell me just where the foreign body was in the eye, but without exception has described its size. When I left the meeting I went to the Norton Infirmary and removed the foreign body under general anesthesia. It has always been my custom for obvious reasons to use general anesthesia in cases of this kind. The first step was to make a thorough dissection of the conjunctiva and also the external rectus muscle making a clean, smooth operative field, then introduced traction sutures. In cases of this kind an eye speculum cannot be used where the foreign body is metal and is to be removed with a magnet. Silk sutures are introduced at the sclero-corneal junction on both the nasal and temporal side for traction purposes, and the eye can then be moved in any desired direction. Of course a speculum is used while dissection is being made and is then removed. After completing the dissestion and pushing the conjunctiva, capsule of tendon and rectus muscle out of the way, the speculum was removed and the lids held open by an assistant. The eyeball was rotated toward the nasal side and an incision made in the sclera, far back, extending upward and outward in the direction where I was told the foreign body was located. The magnet was then applied to the lips of the incision and the foreign body instantly removed. I have never failed to extract a piece of steel from the eye by means of the Haab magnet. Of course, I have lost some eyes, but the majority of them have been saved, and I think the reason we save so many more of them now than formerly is due to the accurate localization of the foreign body by means of the Roentgen-ray. The wound in this case healed without any trouble, the patient had no pain, he left the infirmary within a week with a useful eye. Of course, he may later develop traumatic cataract, but even if he does that may be needled with the preservation of good vision if desired.

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*Cilnical report before the Louisville Medico-Chirurgical Society.

In the last case I cannot give a full history. I saw the patient in consultation with one of my colleagues yesterday. It was not really my case. While working about the house a lady, aged twenty-nine, was using a hatchet in putting a screen in a window. She struck a nail with the hatchet and said "something flew off and hit her in the eye." My colleague who was really in charge of the case made the diagnosis of a foreign body in the eye probably in the crystalline lens. An x-ray picture was taken by a gentleman who does not localize in his examination for such foreign bodies. When my colleague asked me to see the patient with him I told him if the localizer had not been used it was our duty to send the patient to some one who could not only discover the foreign body, but describe its actual location in the eye. She went to Dr. Keith, and, again, he reported to me the exact location of the foreign body and its size. He said the body was not quite as large as a blackberry seed and was located in the posterior part of the crystalline lens. I have not seen many foreign bodies in the lens, the most of them have been in the vitreus, some near the center, others far posteriorly.

Here was a case in which there was room for honest difference of opinion among perfectly competent specialists in this branch of medicine, that is whether we should leave the foreign body in the lens and wait for the lens to become cataractous, as it is almost certain to do, and then make an incision and extract the lens removing the foreign body with it; or to undertake immediate removal of the foreign body by means which seemed most appropriate. In view of the fact that the foreign body in the lens was very near its posterior margin according to the measurements given by Dr. Keith, and as such foreign bodies may very readily gravitate into the vitreus, it seemed to me wise to attempt immediate extraction anteriorly. I do not usually extract such bodies anteriorly, but in this case I believed there was a fair chance to remove the body from the lens by either using the wide end of the magnet and drawing the body into the anterior chamber or making a small incision into the anterior chamber and carrying the point of the magnet toward the lens. Certainly the patient will in any event have a traumatic cataract. I would not have made a posterior incision if I had not succeeded in removing the foreign body by the measures described, I would have allowed it to remain and trust to removing it later together with the lens. The foreign body was successfully removed by the anterior method, and on the whole I think this was the wisest course to pursue.

SPINAL CORD DISEASE—REPORT OF CASES.*

By John J. Moren, Louisville.

In opening a discussion upon diseases of the spinal cord, it is well to remind you that hysteria is to be excluded. The following case will illustrate the inconsistency of this psychosis:

Case I—Female, aged 30, married, no children, several miscarriages. When a child she hurt one ankle, and had convulsions. This illness lasted for some time. Has had nine operations, and uses fifteen grains of morphine a day. Four months ago fell, striking the right hip against the door step. Following this she could not use the right leg. Gradually lost the use of the left leg. At no time has she complained of bladder symptoms. She complains a great deal of pain or ache in back and legs.

Physicial examination: She walks with a suffering gait, aided by crutches, but moves around remarkably well. While sitting or lying down she cannot move legs in any direction. Reflexes are natural, nutrition of muscles good and respond sharply to the faradic current. There is an area of slight analgesia from the lower third of thigh to the ankle. The feet are numb, as she described it, but a pin stick is felt distinctly. While testing the muscles with the electric current, unintentionally she received an unexpected shock. She moved the leg before realizing that she was getting it away from the pad.

In this case we have an area of anaesthesia, stocking-shaped, but less pronounced in the feet. In cord diseases, as myelitis, such an area is common, but the upper border is not so sharply drawn and the diminished sensation increases toward the distal part of the extremity. A lesion giving rise to so much sensory disturbances would certainly produce bladder or reflex symptoms.

Case II.—C. B. R., aged 28, healthy railroad man. On December 15, 1921, fell from a coal car, striking lumbar spine against the end of a cross tie. He complained of pain and inability to use the left leg. The entire leg felt numb. He remained in bed some time, complaining of pain and inability to use the left leg principally from pain, but gradually improved and walked with the aid of a cane. During his confinement in bed he had neither bladder or rectal symptoms. I saw him March 17, 1922. His chief complaint is weak hip and back and numbness of left leg. He walks with a cane and has a characteristic gait of one relying upon its support.

Examination revealed a slight diminution of sensation over the left leg, extending posteriorly from the sacrum, and anteriorly from the middle third of the thigh. There is no vesical or rectal anaesthesia, no bladder, motor, reflex or nutritional symptoms.

He was advised to throw away his cane and have a good time. This case is not reported as hysteria, neither do I believe it a compensation neuroses. He was a high type country boy. He was to be promoted to a better position about the time of the accident. He was suffering pain and was advised—correctly—to keep quiet.

The psychology of all this was fear. He was afraid he would lose his promotion. He was afraid to move his leg because of pain. Such cases open the question of diagnosis of hysteria, compensation neuroses, malingering, and actual injury. They are cases that concern us all. This individual case is reported as a contrast, though similar to the hysterical paraplegic, in that there was no physical finding to establish that his complaint was based upon an actual injury to the nervous system.

We should not be too sure of these cases being functional. This area of sensory defect conforms to the root segments of the cord and there might have been a concussion of the cord. It would be reasonable to suspect hemorrhage. Falling from such a distance would hardly produce concussion sufficient to produce necrosis of the cord, as suggested by the French neurologists.

I have seen quite a number of similar cases in the last twenty-five years, but rarely do I see a picture of organic disease which could be connected with a history as in this young man.

Case III.—S. K., aged 46, merchant, married, six children. Negative personal history. During the summer of 1921, noted a numbness around the buttock, perineum and scrotum. Four months later the outer side and bottom of the feet began to burn. Impotency has been noted for several months previous to the onset of the sensory symptoms. Being an indoor man, he says he has had more or less trouble with constipation, and occasionally external hemorrhoids. No bladder symptoms have appeared at any time. He suffers from "rheumatic" pain in the legs, noted mostly on changes in the weather.

Physical examination: There is a diminution of right knee and left achilles reflex. Abdominal, cremasteric and plantar reflexes natural. There is a saddle-shaped hypoaesthesia, including the buttock, anus, perineum and scrotum. Frequently he does not feel the passage of urine and feces, but this is not constant. In certain areas, especially the scrotum and perineum, a pin stick causes "electricity" feeling. This same perversion of sensation is noted on the sole and outer side of each foot. The pupils react to light, but slow and the left is smaller than the right. Blood Wassermann was negative.

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*Read before the Louisville Medico-Chirurgical Society.

Regardless of negative history and Wassermann, this man was given specific treatment with improvement in general health, but slight improvement in the sensory symptoms. He lost both achilles reflex. Two months later a second Wassermann was made with a report of two plus. He was referred to Dr. Young for treatment. Examination four weeks later showed a positive improvement in all symptoms.

This case has an unusual history and with a negative Wassermann other conditions would have been suspected, but I based my opinion upon the pupil reaction, type of sensory symptoms and the general appearance of the man. He was not up to standard, prematurely aged. His rheumatic pains are most suggestive and regardless of his improvement I believe this case will prove to be tabes beginning in the sacral region.

Case IV.—V., aged 74. Has had a healthy and active life. Eleven years ago he suffered from a nocturnal pain in the lumbar spine, which lasted two or three months. X-ray and blood examination at that date were negative. In the spring of 1921 he had a rectal abscess. In December, 1921, the nocturnal pain recurred. This pain starts from the lumbar spine, radiating on the right side about the crest of the ilium, and stops at the mid-abdomen. He complains of no tenderness or sensitive points. This area corresponds to the eleventh and twelfth dorsal segments of the cord. The pain occurs only at night after lying down and compels him to sleep in a chair. No other pain is complained of.

Physical examination: Patient is thin, but remarkably active. There is a loss of tendon reflexes in the lower extremities, loss of pupil reflexes. The right cremasteric is diminished. Abdominal and plantar reflexes are natural. No disturbance of any form of sensation could be detected. There is a slight Romburg sign, but no bladder symptoms. In the morning on arising some stiffness and aching sensations are noted in the back, but disappear after he "ties his shoes." While lying in bed with legs extended he feels a slight tingling sensation in both feet.

It is believed that this pain is of spinal cord origin. The question arises, has he an atypical tabes or an extra-medullary tumor. The history of the two attacks of the same pain is most suggestive of tumor. It is not the rule for tabetic pains to occur regularly. They occur in crisis. It is singular that pain from spinal tumors so frequently occurs after the patient lies down and is relieved by sitting or walking around. If this patient has tabes it is remarkable that he has not developed bladder signs by this time. He even has only slight frequency for one of his age.

During the past winter I have seen three cases of unrecognized tabes on account of the atypical history, but each has had the crises of pain and each are much younger than Mr. V.

No lumbar puncture has been made for the reason that the patient is in such good general health for his age that I thought it wisest to let well enough alone. At this date he is able to sleep most of the night without pain, occasionally the pain will awaken him after two to five hours' sleep.

Case V.—C. J., aged 30, entered the hospital May 7th, for pain in the back. He gave the history of exposure to wet and cold about March 1st. During the night of the 3rd he was awakened by a severe pain in the lumbar region, radiating on the right side around the abdomen to a point a few inches above the pubis. Paresthesia and weakness of the left leg appeared and the pain increased, being worse at night. Examination revealed hyperesthesia to touch, pain and temperature with increased tendon reflexes, Babinski sign, and a spastic weakness of the left leg. The right leg was not hyperesthetic but weak. He could not stand alone. No bladder symptoms. Blood and cerebro-spinal fluid Wassermann was 4 plus. Following the lumbar puncture he had retention of urine for two or three days. On March 14th an area of hypoaesthesia was noted on the right foot, particularly on the sole and outer side and did not extend above the ankle. This patient has the usual history of syphilitic meningo-myelitis, and doubtless had slight symptoms in the legs some days prior to the onset, March 3rd.

The oustanding feature of this case is multiplicity and irregularity of symptoms. Hyper and hypoaesthesia, reflexes differing, motor weakness and persistent pain. The Wassermann reaction confirmed clinical signs. There are symptoms suggesting meningeal as well as cord involvement. Such variation is seen in incomplete transverse lesions of the cord.

The interesting point in this case, is what caused the retention of urine after the lumbar puncture? Cases of retention have been reported and thought to be due to hemorrhage. In view of the absence of bladder symptoms prior to the puncture, and the rapid improvement, it is believed the retention of urine was directly dependent upon the puncture and not the pathology of the cord.

Case VI.—Mrs. S., aged about 50. In May, 1918, awoke in the early morning with a severe radiating pain and paraesthesia in the right arm. By evening the right leg was weak and tingling. The following morning the left leg "gave way," and the pain located in neck and shoulders. Three weeks after the onset she complained of both legs contracting, drawing knees to the chin. There was a girdle sensation about the nipple line. During her illness she had motor, sensory and bladder signs in keeping with a lower cervical cord lesion.

This patient was seen for the first time in June, 1919. She was able to walk with the aid of help. There was a spastic paresis of right leg and arm, and some defect on left side. There was a positive Babinski on right foot, and defective pain and temperature sense on left side, extending from about the mid-scapula line. The inner surface of the left arm was similarly involved. Her principal complaint was a pain in the right obturator, occurring only after lying down. This pain, which was severe, starting about the lower pelvis, and rarely went below the knee. This pain began in March, 1919. In addition to this nocturnal pain she had a very annoying burning sensation in the left hand and foot, and at times occurring in right foot.

The diagnosis was possibly hemorrhage in the lower cervical cord, involving principally the right side. This would explain the Brown-Sequard syndrome, but I could not explain the origin of the pain. The resemblance to that of hip joint disease was striking, but the X-ray examinations of the pelvic area were negative. No explanation could be found. In searching the literature I recalled an abstract of an article in a little war manual on distal pain in cord injury. There I found several such cases had been seen following cervical cord lesions and occurred mostly in those with slight involvement of the cord. No explanation other than oedema or circulatory disturbances was offered. The author stated that the pain usually disappeared after a variable length of time.

Today this patient is well nourished and moves around very well indeed, but shows some spasticity of right leg. Whether she has pain I do not know. This improvement doubtless indicates that no tumor or cystic formation has occurred.

Case VII.—H., aged 22, in July, 1921, made a dive in shallow water and struck his head against the bottom. In a short while he had diplegia, with little pain, some slight difficulty in urinating, but more trouble with the bowels. The paralysis disappeared within a few days, and in a short time he continued his travels. A fluoroscopic examination of the spine at that date showed no fractuure or dislocation. During the past winter he has been troubled with a slight pain, but particularly a hyperesthesia over the outer surface of each arm, but more pronounced on the left. This hyperesthesia is particularly noticeable when taking a bath. Heat is most diasgreeable. The reflexes in the left upper extremities are exaggerated. There is no motor disturbance, the patient having good use of both upper extremities. Otherwise the physical examination is negative. X-ray shows a compressed fracture, superior border, of the body of the fifth cervical, with callus between fourth and fifth cervical vertebrae.

This type of hyperesthesia is of frequent occurrence and accompanies root lesions rather than the cord proper. Frequently in locomotor ataxia it is a very pronounced symptom. Postmortem examination in injury cases has not revealed the pathology suspected, namely, hemorrhage in the roots. This patient, of course, has a very slight injury in comparison to the average fracture, but it illustrates the recovery of such cases. It is generally regarded that cervical lesions make the best recovery. This was noted in the gunshot cases, and is explained on the basis of the flexibility of this part, which lessens the resistance to any violence.

Several years ago a similar case was seen and today the patient is perfectly well.

Case VII.—Mr. S., aged 71, farmer. On Saturday he worked very rapidly at sawing wood. On Sunday developed pain back of the right ear, shoulder and arm. This persisted without much relief until the following Sunday, when herpetic eruption appeared on the median nerve distribution in hand and lower arm. He commented upon a very annoying symptom, namely, sweating of right face. As the pain subsided he noted a weakness in shoulder muscles. Examination six weeks later showed paralysis with reaction of degeneration in the deltoid and biceps muscle with a partial reaction in flexors of the forearm and loss of tendon reflexes. There was an area of positive anaesthesia on the outer surface of the arm, extending from tip of shoulder to lower third of forearm, with the area of hyperaesthesia in hand and lower arm, the location of the herpes. Six months after the onset he had practically recovered. This case was interpreted as radiculitis.

This is the first case I have observed with clear cut history of herpes zoster followed by paralysis. The prompt recovery shows it was not cord disease, but was peripheral involving the spinal roots.

Case IX.—E. H., aged 54, horse trainer, seen for first and only time in June, 1920. I could not rely upon the history obtained from this patient. He stated that eighteen months previously he suffered severe pain in left neck followed by numb feeling in left face and ear. In a short time the arm was involved and finally he lost power, especially in flexing hand and use of shoulder. His condition progessed and pain persisted.

Examination showed wasting of arm, especially shoulder girdle and flexors of forearm. There was a pronounced fibrillary tremor in the muscles. There was loss of sensation about upper area, but I cannot rely upon the degree. There was hyperaesthesia of median nerve area and especially in tip of index and thumb. The thumb nail "fell off." The tendon reflexes were lost. There was tenderness about the cervical vertebrae.

The history of a radiating pain, paralysis, atrophy, fibrillary tremor and tenderness over the spine suggested disease of the vertebra. X-ray showed the seventh cervical much smaller than normal. The nature of the process the radiologist did not state.

This is an incomplete history but illustrates the type of cord symptoms doubtless from bone lesions and forms a contrast to the radiculitis mentioned above. The numb feeling in the face is attributed to involvement of sympathetic. A somewhat similar picture was recently seen in a case of cervical rib.

DISCUSSION:

S. G. Dabney: I am asked to discuss Dr. Moren's paper from the standpoint of ocular symptoms in spinal cord disease. My observation and what little I know of spinal cord disease is practically limited to locomotor ataxia. In listening to Dr. Moren's citation of the case of unilateral sweating I wondered whether he carefully examined the eye. Unilateral sweating sometimes occurs in paralysis of the sympathetic usually from injury or from pressure of enlarged glands; it is attended by a rather small pupil, slight ptosis and retraction of the eyeball.

A few words about the only phase of the subject which I can discuss intelligently, viz., the ocular symptoms of locomotor ataxia. They may be divided into three groups, (a) those that affect the pupils, (2) those that affect the external muscles of the eyeball, and (c) those that affect the optic nerve. The external ocular muscles and the pupils are the ones generally affected, and symptoms referable to these may precede a long time any other manifestations of locomotor ataxia. I may illustrate this statement by citing the case of a gentleman who formerly lived in Louisville; he subsequently moved to New York, where he came under the observation of several neurologists. He had always been in perfect general health. A year or two later while on a visit to Louisville he came to see me. Looking at his pupils I noticed that they were widely dilated, one larger than the other; neither one reacted to light. I tried diplomatically to approach the question of his having lues in former years. When asked if he had ever had syphilis he said, "Yes, that he had syphilis about twenty years ago and was treated for three or four months." I have seen many patients giving such a history, that they were treated for three or four months by some doctor and then dismissed. This gentleman seemed quite upset by some of the questions I asked him. When asked about his sexual relations, etc., he said they were perfectly normal; he was an active business man and his general health was good. After returning to New York he developed paralysis of the motor oculi of one side with complete drooping of the upper lid. I understand that later he developed locomotor ataxia and finally died. I mention this case merely to show that pupillary symptoms sometimes occur long before there are any other noticeable signs of locomotor ataxia. In this instance there was an interval of many years.

A word or two more about pupillary symptoms: I suppose the one generally looked upon as most characteristic is the Argyll-Robertson pupil, in which both pupils are small and both react to accommodation, but not light. That is looked upon as the characteristic pupil of locomotor ataxia, but so far as my individual experience goes I have far more often seen a dilated pupil which did not contract to light, either one or both. I do not believe much importance, and personally I would be inclined to say no importance, is to be attached to inequality of the pupils provided they both contract to light as well as to accommodation. A pupil which does not contract to light, barring any history of injury, always means something, whether it is small or large. The Argyll-Robertson pupil may occasionally be found on one side, but as a rule it is found on both sides. On the other hand, a dilated pupil is more frequently unilateral than bilateral. A well known physician of this city who died some years ago had for many years a dilated pupil which did not contract to light before he developed any other symptoms. He finally died of cerebral lues.

As to the external ocular muscles: Diplopia is due to paralysis of the ocular muscles, one or more. One of the strangest things about diplopia is that it is sometimes transitory. I have seen patients who saw double only for a moment or two; in others the diplopia disappeared within a few days or weeks. I have also seen them occasionally where the disturbance was continuous; this was particularly true where the external rectus was involved.

Passing to the third and most deplorable group of ocular symptoms, i. e., disease of the optic nerve; that disease known to oculists as gray atrophy of the optic nerve. It may be and has sometimes been mistaken for glaucoma by men of large experience and after careful examination. I am aware of at least one case in which that mistake was made. There is a gray progressive atrophy of the optic nerve. One of the most interesting things in regard to it is that the ataxic symptoms as a rule are very slight. The patients I have seen with this type of optic atrophy have had very little trouble comparatively in their locomotion. I have not always had the reflexes examined, but they walked with normal gait. It is a well known fact that ataxic symptoms are apt to continue slight in the so-called gray atrophy of the optic nerve. The field of vision is contracted in various ways, usually more or less concentric, but it is not uncommon to have sharp angles, and the color field is diminished sooner than the field for form. This is one of the important points in the diagnosis. So far as I am aware there is no treatment; the disease progresses to inevitable blindness.

I may be permitted to mention a few illustrations: A very prominent citizen of Kentucky was told in his early manhood by a well known former physician that he had syphilis. He consulted an eminent syphilographer in New York. This was before the days of the Wassermann test; this physician gave it as his opinion that the patient did not have syphilis. He later became totally blind from atrophy of the optic nerve. All the cases I have seen have given a history of that kind. I have never seen a single patient who had received regular systematic treatment even by the old-fashioned method (particularly by inunctions of mercury) over a period of three or four years who later developed eye symptoms.

A prominent business man of Louisville nineteen years ago had a very curious eruption which gave him a great deal of annoyance. He was at that time actively engaged in business and was half sick much of the time and went to various hospitals in distant cities to be treated. He became many years later totally blind from atrophy of the optic nerve. He had never received any anti-leutic treatment in his life.

DeSchweinitz claims 34 per cent of locomotor subjects develop atrophy of the optic nerve. I do not know the frequency of Argyll-Robertson pupil.

I have seen only one negro who became totally blind from atrophy of the optic nerve.

W. E. Gardner: I did not know until a moment ago that I was expected to discuss the diagnosis of spinal cord diseases, therefore, my remarks will necessarily be more or less disconnected. The case reports presented by Dr. Moren are extremely interesting and have been made more so by the illustrative charts he has had prepared. With these before us the essential facts are impressed more vividly upon us.

The first case reported was undoubtedly one of hysteria; the second case may be classified as traumatic neurosis. It is the general belief that there is no known pathology in these cases, they are usually considered purely functional. However, it is believed by some that possibly underneath the site of injury there may sometimes be a slight puncture hemorrhage and a degeneration of certain portions of the white matter of the cord. When this is true it usually corresponds with the distribution of some of the segments of the cord. When zones of anesthesia occur in traumatic neurosis or hysteria where there is no organic lesion it is exceedingly difficult to account for the phenomena, as Dr. Moren has said except on the basis of fear. Of course, the theory is held that there is some repression in all cases of hysteria; there is a tendency on the part of the individual to have various emotional outbursts following injury or disappointment; and by repressing the ordinary manifestations of hysteria with the usual emotional outbursts, a physical symption sometimes appears as a sort of convulsive hysteria. In other cases, instead of having an emotional outburst the patient may develop localized zones of anesthesia. I have seen patients develop complete hemianesthesia where there was no disturbance of the reflexes whatever and no indication of an organic lesion. The irregular distribution of the anesthesia as a rule is characteristic of hysteria, and it does not become more marked in the distal portion of the extremity as we note in organic lesions.

If there is an organic lesion we can usually prove this not only by anesthetic areas, but also by disturbance of the reflexes along the distribution of the segment involved. We have fairly well defined land marks in making the diagnosis of lesions of the spinal cord, just as we have in the motor areas of the brain. For instance, if there is a lesion about the sixth or seventh cervical vertebra, we have disturbance of the reflexes about the wrist or elbow: if there is a lesion of the eighth or ninth dorsal segments, we will have loss of the epigastric reflex; if there is a lesion about the tenth or twelfth dorsal segments, we will have loss of the abdominal reflexes; if in the upper portion of the lumbar segments, we will have absence of the cremasteric reflex; if in the lower part of the dorso-lumbar region, we will have absence of the knee jerk: if in the sacral segments, we will have absence of the achilles or plantar reflexes. In these instances, however, there is sometimes an exaggeration of the reflexes, depending upon the area involved. It is unusual either in brain tumor or injury to the spinal cord to have involvement of the motor tracts alone. The reasons for this are abvious.

In the leutic cases I was impressed with the irregular distribution of the anesthetic areas. I believe Dr. Moren said in one case the phenomena were confined to the outer surface of the leg and foot. The pupillary disturbances and inequality of the reflexes on the two sides were suggestive of paresis, and I understand this diagnosis was confirmed by laboratory tests.

The Brown-Sequard syndrome is always interesting. In the case reported there was motor paralysis on the same side as the injury to the spinal cord, with loss of pain and temperature sensations on the opposite side. These are the characteristic Brown-Sequard symptoms. This syndrome is due to the crossing of the pain and temperature fibers to the opposite side just above the twelfth dorsal segment; they do not cross in this way below the twelfth dorsal segment, so even if there is an injury below this point we will not have typical Brown-Sequard symptoms.

The diagnosis of tumors and injuries to the spinal cord is always interesting and there are several points which should be carefully investigated. Four or five occur to me: First, is disturbance of sensation; second, the area of paralysis and distribution of motor as well as sensory disturbance; third, disturbances of the reflexes; fourth, the Roentgen-ray investigation, there being no question now about the value of this method of diagnosis in cord lesions which are due to injury or spinal tumors; and fifth spinal puncture, which should always be done not only for the sake of determining the possibility of lues, but also the cell count, increase in globulin content, etc., as an aid in eliminating other general disorders. Sometimes we are able to complete the diagnosis only by this method of investiggation.

What about surgery in these cases?

It has been found that exploratory operations are possibly no more dangerous in tumors and injuries of the spine below the cervical segments than any other portions of the body. Of course, when we get into the cervical region exploratory operation may endanger some of the cervical nerves of the brachial plexus. It must also be remembered that on account of the greater flexibility of the cervical portion of the spine there is more likelihood of recovery without surgical intervention in traumatic injuries in this region than in other portions of the spine. Below the cervical region perhaps exploratory operations can be done with as much safety as in other parts of the body. I think surgeons are beginning to realize this more and more and are performing laminectomy not only for the relief of pathological conditions, but also in an exploratory way with little risk to the patient.

Guy P. Grigsby: It would be impossible in the time allotted to adequately discuss surgery of the spine including spinal cord diseases. It is my opinion that surgery of the spine is going to be much better understood within the next few years than it is at present. Elsberg, of New York, has done more to put surgery of the spinal cord on a rational basis than any one else who is doing this type of work. Unquestionably at the present time this branch of surgery is a specialty of its own. The results from operations on the spinal cord are dependent more upon proper diagnosis than upon the technical application of surgical principles. As I see it spinal surgery itself is not a difficult matter. After the diagnosis has been made and the lesion accurately located in the spine, the operation can be handled by any trained surgeon who is delicate in his surgical technique. Undoubtedly surgery of the spinal cord has been retarded in its progress, and has been put in bad repute in the profession generally, by ill-informed operators who have operated in unsuitable cases and unfavorable results have accrued from these ill-advised procedures.

My personal experience in this type of cases has practically been limited to traumatic injuries of the spine. These are the cases we are most frequently called upon to treat surgically. Patients with lesions such as described by Dr. Moren usually recover without surgery. The one case of cervical fracture cited is rather typical in its history in that the man made practically a complete recovery, and later when callus formation occurred there was pressure on the cord with reappearance of the symptoms.

In transverse lesions of the cord, with total paraplegia, total loss of reflexes, and total loss of sensation surgery offers nothing. It means that there is a complete severance of the spinal cord and surgery can accomplish nothing. The traumatic cases which offer more relief from surgery are those where the patient presents symptoms of trauma to the spine without complete absence of sensation and loss of reflexes, and these are the ones in which after proper diagnosis by Roentgen-ray examination and location of the lesion, should be subjected to exploratory laminectomy. As Dr. Gardner has said in the dorsal and lumbar regions the operation can be performed with comparative safety and much benefit may be derived from it. In cases where there is pressure on the cord from fracture of the spine, operation promises relief with permanent functional result so far as the patient is concerned.

I have had one case of dislocation of the fourth cervical vertebra which was successfully reduced. There was no question about correctness of the diagnosis, as bulging of the vertebra could be seen in the throat; there was some paralysis of one side. The patient was one of the victims of a disastrous railroad wreck which occurred here several years ago, and as we had to work quickly, not having time to study the case thoroughly, Dr. Bloch held the patient's head firmly and by making traction we were able to reduce the dislocation without difficulty. The bone assumed its normal position with a distinct "snap" with almost immediate relief of the pain and paralysis from which the patient had suffered. The patient had spastic paralysis of the left leg for two or three months without loss of sensation, but finally made a complete recovery and is well today.

It is my belief that many cases of spinal cord disease will soon come within the domain of surgery. All cases of tumor, some of tuberculosis of the spine with pressure symptoms which cannot be relieved by the application of fixation apparatus, hyper-extension and fixation, in all these cases surgery offers relief by removing the tuberculoma which may be present in the cord making pressure. Surgery also offers relief in all spinal injuries where the cord is not divided. Spinal tumors unfortunately are sometimes intradural rather than extra-dural. Of course, they may be present in any part of the cord. Wherever situated they may give rise to motor or sensory disturbances, the symptoms depending somewhat upon their location. Many cases of spinal cord tumors have been relieved by surgery. And I feel that in the future with the advances which have been made in surgical technique, with improvement in Roentgen-ray methods of examination, with better trained neurologists and with better trained surgeons working in co-operation, that many of these cases which in the past have been relegated to the hopeless class may in the future be entirely relieved.

The point has been made that in lesions of the spinal cord the history usually extends over a period of two or three years, it may even be ten years. In any case, where the symptoms develop gradually, indicating a lesion at a certain level, where the symptoms become progressively more pronounced, I believe we are justified in suspecting a spinal tumor and operative investigation should be made. I think we would be justified under such circumstances in making an exploratory laminectomy to determine whether or not something can be done to relieve the patient.

Surgery of the spinal cord offers a fertile field for investigation and study, and there should be close co-operation between the neurologist, the roentgenologist and the surgeon. I believe much good will be accomplished along this line in the future.

ALL-TIME HEALTH OFFICER.*

By J. A. Phelps, Hickman.

To the question, when should be begin the training of a child? Dr. Oliver Wendell Holmes replied: "About six months before its birth." Believing a like answer would be a good one to many matters of sanitation, I am asked to devote as much as fifteen minutes to a subject that involves the question of human happiness and health from the very hour of conception up to and inclusive of the death and burial of the body. Thousands of questions present themselves to the student of sanitation, many or them suspectible of every day application, but of most of them it may be said that the public sentiment is not yet prepared to receive and put into practice. For these last it can only be said that a broader and deeper education of the people must be brought about before we can hope for their acceptance and adoption.

At present we should interest ourselves in the enforcement of what may be termed every day rules of sanitation, such as public opinion is prepared to receive. And it is to these that the health physician should devote himselfmost assiduously, and to this end his investigations and his advice should have no limit save only the boundaries of the county or corporation within whose confines he is authorized to work.

This is of all ages of the world the age of that highest and most divine of medical study and research.

Preventive Medicine: To cure disease is well; its possibilities are profoundly commendable. It bears the stamp of commendation of the Savior. But the prevention of diseases by the physician places him on a pinacle just a little below the angels. And at last the end aim of the health officer is for the prevention of disease, and to this end he owes it to himself, to the public and to his honorable profession to possess himself of an intimate knowledge of every community under his supervision.

He should be advised promptly of every outbreak of infectious or communicable disease in the county, and when he is so advised he should then make a personal inspection of the surroundings and conditions, nor should he be content until the cause has been ferreted out and removed.

The story of typhoid fever and its causes is an old one. It is familiar to the merest neophyte in medicine, hence it need not be largely referred to here, save only to emphasize an active fulfillment of the well known measures looking to its immediate suppression.

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*Read before the Kentucky State Medical Association, Ashland, 1919.

So, too, will this suffice in all outbreaks of eruptice disease, such as measles, scarlatina, smallpox, etc. But there is a class of diseases and physical defects that have received so little attention as to justly stamp their neglect by the health officer as criminal. And all of these defects are so readily detected and so certainly cured, that one is amazed and ofttimes saddened in their contemplation. I have reference to the eyes, ears, nose and throats of children.

Every child now born or to be born should have the advantage of a careful and intelligent examination of his or her eyes, ears, nose and throat. And it should be the bounden duty of every health officer to see to it that all children should be so examined upon his or her admission to any and all schools.

Errors of refraction are quite common among children, and they are becoming more so as education becomes more universal. And they are so easily reminded that to deny these little fellows the needed relief and thus bring on them the long train of evils that follows is not only pitiful, but cruel and almost savagery.

Adenoids are equally as unfortunate in many instances. Middle ear troubles are largely preventable. Our penitentiaries are filled with criminals who would have filled honorable places in society had certain general defects been propery handled.

There is a world of work, not only for the sanitary officer, but for every man who assumes the responsibilities of our profession. It begins actively and urgently in the hour that the new born babe opens its eyes upon the world.

For untold time the average physician has been content in the hour of childbirth to mape a casual inspection for any physical defects and then pass it over to the nurse.

That day is or should be dead for all time, we should, in all cases, know beyond peradventure the medieal and surgical history of every child's parents long before the child is born. Even a very limited inquiry along certain lines would lead the intelligent physician to resort to means at birth that would save thousands of unfortunate children whose destiny otherwise would be to walk the world in darkness.

Then again, the sanitary officer is or should be pre-eminently a teacher and in this respect his duties are endless. This last applies in a peculiar way to the inhabitants of rural districts. In fact it would be no bad idea to have a school of instruction in different communities. Every farmer should be taught by advice and admonition the basic principals of sanitation, in its broadest sense. He should know all about the best methods in the disposal of human excement. He should know most intimately the ways and means whereby the water from his well may become contaminated, as well as the methods by which this great danger may be lessened if not wholly avoided.

He also needs to know the sure and certain means, whereby the flies that so often infect his home may be done away with. There are hundreds of details as to bodily cleanliness and personal habits, too endless to even mention here, all of which lie in the domain of the sanitary officer, but which will suggest themselves to those who reflect and are interested.

I want to repeat again, that aside from every day duties of the sanitarian in the way of suppressing outbreaks of infectious diseases, the great Mecca to which we should all turn our eyes, unceasingly is the school room.

It is here that the most good can be accomplished at the least trouble and expense. We need legislation whereby no teacher should be allowed to enroll a child until it has undergone a careful examination, and especially with reference to its vision and hearing. Justice to the child itself demands it.

And you will pardon me if I remark, incidentaly, that the physician who does this work, should bear with him, well established proof that he is properly qualified for such work. And now in conclusion let me say that I am not unmindful that I have made suggestions and hinted at lines of progress that are in many respects impracticable at the present day. But who should take the lead in the march of sanitary science unless it be the physician? There has got to be some brush breaking, some blazing of new pathways. The world about us must be made ready for what, to them, will seem radical innovations.

A land of promise lies out before us. Who bu tthe physician is to become the Moses in this modern Passover? The land has been "spied out" by every intelligent physician and the one all absorbing question that confronts you and I "Shall we go forward and possess the land?"

DISCUSSION:

G. W. Moore, Ashland: Having acted as health officer of the City of Ashland, I have some knowledge of the subject of an all time health officer. I am heartily in favor of an all time health officer in counties where we have cities of 15,000 or 20,000 people. The probability is that it will require a health officer for the city as well as outside of the city, but a health officer should not be allowed to engage in any other business. He has more than enough to do if he performs his duties as a health officer. At least, that has been my experience since I have been in office. The schools alone in Ashland will keep one man busy. At the opening of our schools here the 15th of this month, I issued instructions to our superintendent that he should permit no child or teacher to attend a school who had not been recently vaccinated, nor should he allow children to come from a home where there was any infectious or contagious disease until he had received a certificate from the attending physician, and that is being carried out. As I have previously said, I am heartily in favor of an all time health offier; but he should be a qualified man.

J. W. Kincaid, Catlettsburg: I have been connected with the County Board of Health for the last twenty years, and I can appreciate the difficulties which attend the proper discharge of the duties of a health officer. The subject is so vast and the work so momentous and so important, it seems to me that it needs no argument as to the necessity of their being a man to fill the position of health officer who devotes all his time and attention to that work, and that work alone.

So many times the health officer in the enforcement of the law runs contrary to public sentiment; he runs contrary to the selfish interests of individuals. If he discharges the duties encumbent upon him as a health officer fearlessly, knowing neither friend nor foe, he will soon be without practice. That being the case, it is not subject to any argument that he should have sufficient compensation to give all his time to the work. The other phase of the matter of prevention of disease, not merely correcting conditions that surround a case of sickness or disease, but correcting conditions before sickness and disease have resulted therefrom, should appeal to all of us. Physicians will not be without all the work they want to do. Even if the health officer has everything put in clean, healthy, sanitary condition, there are so many ills that are dependent upon other causes that there will be enough to do. When the question of having Boyd County declared a Health District is acted upon, I think she can be depended upon to avail herself of the privilege, and thereby obtain an all time health officer.

Arthur T. McCormack, Louisville: For a long time we have dreamed of an all time health officer. We have now started on a very much larger campaign, and we want an all time health department, with an all time health officer as executive at the head, and with enough medical men and nurses and lay assistants to deliver the goods. That means preventive medicine. I want the time to come when every man who practices medicine can have the opportunity to be as qualified as Dr. Carpenter has shown he was, or Dr. Sparks, men who have presented splendid papers here showing that they are devoting their time to scientific medicine.

The time has passed when a man should take up his entire time in treating typhoid fever, a disease which is caused by the ingestion of human excreta. Human excreta ought to be stopped as a part of our feeding forever. It is not a nice thing to say, but it is almost a universal food in Boyd and every other county in the state. Dr. Phelps has made the longest trip that any doctor but one in Kentucky could have made to bring this message to us, and to me it has been inspiring, but the most important thing for the doctors of Kentucky and for the medical profession of the world to remember is that with the present conception of preventive medicine, we have a very small percentage of men engaged in the practice of our profession as will be demanded when we have done our duty in keeping the people well as well as taking really adequate care of those who cannot keep well.

The function of the health department began with public inspection, with school inspection, with the prevention of the entrance of disease from the people, with the prevention of the spread of the disease from the initial case when it gets by our quarantine, and the health department of the future will control the treatment of the diseases that have gotten by its defensive work and do exist, and as Dr. Anderson said yesterday, it is only a question of time until every single solitary citizen will be given the scientific treatment he needs as soon as he requires a doctor, because the time is ripe for it to be given. It is not right for charitable organizations to have been treating the sick and afflicted because they are poor. We owe a duty to ourselves to take care of those who are not able to take care of themselves and put the machinery in such operation that they can take care of themselves.

I am glad Dr. Phelps read this splendid paper. It will do us all good. I wish we could have a great deal more along this line than we have had in the past.

Z. A. Thompson, Pikeville: One of the greatest obstacles we have in the way of an all time health officer is the vast territory in our county. We have approximately 800 miles of country, and while an all time health officer might be all right, I feel very much like Dr. Kincaid, I do not think a man can practice medicine and at the same time discharge the duties of an all time health officer.

Another thing we need is less legislation along this line, but enforce the laws we have. We do not have the cooperation of the officials of our county. There is so much politics mixed up with this that it is necessary to awaken the people as to what we should do and what we want, and in this way eventually get the cooperation of the officials in the different counties.

I would like to ask Dr. McCormack to explain what he means by an all time health department.

Arthur T. McCormack, Louisville: The purpose of an all time health department is to have an officer at its head to whom should be paid a salary of from two to three thousand dollars a year to begin with, and eventually he will get much more if his work is of the kind that wins the confidence of the public. A health officer should be one of the best men in the county and should get as large an income. In the next place, this health officer should have assistants for each district, an all time health nurse and sanitary inspector, who will go about and see people's privies, see their wells and cisterns, and when not in good shape, have two laborers to put them in shape and charge them for it. The community must do it; the individual cannot do it. The officials in many counties will not do anything now because we as a profession have failed to educate them and win their confidence. In many counties they will do a great deal if we educate them and train them. If the doctors of Pike County will get together and decide on some very effective, good men as magistrates, such as Dr. Walters and Dr. Thompson, and see they are elected, they will have a magistrates court, like Dr. Phelps has in his county, and when they discuss public health questions, you will think they are meeting with the Kentucky State Medical Association. Lead the people right. You are the shepherds of the sheep when it comes to public health matters, and unless you lead them they are leaderless.

J. G. Carpenter, Stanford: I have spoken in every church in my county and for fifty miles around, many court houses and graded schools as I could not be well satisfied at home with only country work. I made things so horrible and nauseous that a great many men and women got sick in the churches and had to raise the windows, high, and get some fresh air. It was a case of "reductio ad nauseam." I spoke to the people and taught them what good health means. I said we should have and are going to have an all time health officer and an all time health nurse in our county. One of our county judges refused to give anything. He has often refused before in health matters, and I said, 'the soul that slumbers is dead; this county judge is dead, very much dead; that our magistrates are dead, and I move that we bury them alive; they are not fit to live; they are undesirable citizens, and the sooner we get rid of them the better for the community, and if an undertaker is employed their bodies will not be given a chance to be embalmed. (Laughter.) I said all this in a public meeting. I said further that I was in favor of putting badges of mourning on their homes and office doors that they were dead. (Laughter.) So when these magistrates met they appropriated $50.00 for an all time health nurse. They thought they were going to get buried, I presume, because I said so. We are going to have an all time health officer, as well as a memorial hospital dedicated to the soldiers. I see it written in the heaven; I see it in the shining stars; the babbling brooks tell it. The birds are chirping that there will be erected a memorial hospital sacred to the memory of our soldier boys. (Applause.)

"Tell me not in mournful numbers that life is an empty dream; tell me not in sadness things are what they seem." No, life is not an empty dream, but from a health standpoint, things are worse than they seem. I tell you in sadness and with stupendous emotion—there is forty percent too much sickness and death from preventable infectious and contagious diseases; forty percent too much doctor, drug and "trained nurse" bills and loss of time from business; forty percent too many tears, sighs, groans, sorrows, heartaches and financial loss from preventable infectious and contagious disease and the inevitable, ubiquitous undertakers through ignorance of the public and pirvate individuals, county judges and magistrates are getting forty percent more business than they are honestly and justly entitled to. To thine own self be true and as the night follows day, to all mankind thou must be true. In conclusion let me state—onward and upword. "Let us be up and doing with a soul for any fate. Still achieving, still pursuing, learn to labor and wait." The county judges and magistrates in their slumber and ignorance of sanitary laws, may awaken soon or late, and find themselves minus official estate.

J. A. Phelps (closing the discussion): I can only express my heartfelt appreciation for the generous discussion my paper has received. The only thing I would emphasize is that not all counties are alike. Wherever possible, however, I think it is well to have the Fiscal Court meet monthly. Some of them meet semiannually, and this might be better in some counties. However, this is so much in advance of what we had before that it is of great assistance to me in many ways.

TABETIC GASTRIC CRISIS CURED BY SPINAL NERVE SECTION: CASE REPORT.*

By L. Wallace Frank, Louisville

The following case was reported before a local medical society about a year ago but was never published, as in the original report I failed to mention some of the essential features concerning the treatment employed. As it has now been approximately a year since the patient was subjected to operation, I thought it might be interesting to make a full report of the case.

W. P., male, aged thirty-seven years, was referred to us by Dr. McCullough, of New Albany, Indiana. Family history: two sisters and one brother died of tuberculosis pulmonalis; no malignancy in family. The patient stated that he had a chance twenty years ago, and at the time of our first observation his blood Wassermann was four-plus.

Present illness and condition: Three years ago he began to have pain in his abdomen, at times starting in the epigastrium, at times in his left side, sometimes above the urinary bladder. Pain radiated around the body, i. e., there were very marked girdle sensations. Formerly when he had pain he would vomit; during the last few months vomiting and pain occurred simultaneously. He now vomits almost everything he eats, and eating seems to induce pain. He has lost forty pounds in weight. In July, 1920, about four months before he came under our observation, the diagnosis of gall-bladder disease was made, his abdomen was opened and the gall bladder drained. The family physician was present at the operation and says there was no pathology present. His appetite is good, he has sour stomach most of the time, and he is constantly constipated. Other than an occasional cough he has no pulmonary or cardiac symptoms. There have been at no time any urinary symptoms. He occasionally has pain radiating down his legs, but this rarely occurs.

Examination shows absence of knee jerks; no Achilles jerks; no Babinsky; decided Romberg; no spasticity and no decided flaccidity. Abdomen fairly rigid; no masses palpable; pressure on upper abdomen causes the patient to have pain (girdle sensations). Lungs normal except for slight harshness at right apex on respiration. Heart normal. Pupils unequal, the right being larger than the left; pupils react sluggishly to light, promptly to accommodation. Blood pressure, systolic 118, diastolic 72.

Blood count shows hemoglobin 100%; erythrocytes 4,500,000; leucocytes 11,400. Differential, polymorphonuclears 74; lymphocytes 23; remainder unimportant. Urinalysis showed no albumin nor sugar; few hyaline casts; otherwise negative.

This man had been under antisyphilitic treatment for one year with full doses of mercury and potassium iodide; he had also been given two courses of arsphenamin and arsphenamized serum intra-spinously. Nothing seemed to improve his pain and at the same time we first saw him he was taking morphine in half grain doses to control his pain. He was referred to us on account of the severe epigastric pain. We concluded that he was suffering from gastric crisis which we thought might yield to section of the posterior roots of the spinal nerves, and this procedure was suggested.

On October 15, 1920, three days after admission to the hospital he was subjected to operation, the procedure being about as follows: A curved incision was made extending from the third to the eighth dorsal vertebrae, having its maximum convexity over the fifth vertebra. The skin flap was reflected, the fascia incised and pushed backward exposing the spinous processes. A laminectomy was then performed removing the lamina of the fourth, fifth and sixth vertebrae. The dura was then exposed and incised, the fourth, fifth, sixth and seventh segments of the dorsal roots were divided on both sides. There was very little intra-dural hemorrhage. The dura was closed with silk and the external wound closed in layers by the usual method. A cigarette drain was placed under the fascia.

Subsequent history: On October 21st, six days after the operation, the patient left the hospital of his own accord. He returned October 22nd, and on the 30th was dismissed. The skin incision was at that time wide open but the fascia and muscle had healed.

Since that time the patient has been given mixed treatment (mercury and potassium iodide) by the mouth. At one time he had some return of pain which persisted about a week; other than that he has had no return of his gastric crisis; he has regained much of his lost weight; he is in good physical condition and has been constantly at work.

This report is made to show what can be accomplished in cases of this kind. My original report was made shortly after the operation. The man has had no return of pain or discomfort worthy of mention. Three or four months after the operation he returned and said he was having slight abdominal pain,

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*Clinical report before the Louisville Medico-Chirurgical Society.

A binder was applied over his lower abdomen and pain ceased.

I though a history of the progress of this case since the operation might be interesting to the society.

DISCUSSION:

C. W. Dowden: The most striking feature in Dr. Frank's report is that he has accomplished what we must consider as little short of a miraculous cure in a most obstinate condition. My remarks will not refer to the treatment of tabetic crisis; I wish to particularly mention the frequency with which such cases occur and to urge the necessary procedures to discover them.

Doubtless all physicians during routine examinations have come across histories similar to that related by Dr. Frank. In the case reported, the patient has been subjected to operative intervention for supposed gall bladder disease and no pathology found, which in itself sounds an important note of warning. Where a patient complains of abdominal pain, with characteristic girdle sensations, where everything else is negative after thorough investigation, I believe we should always suspect tabes; but even then a Wassermann of the blood is not quite sufficient to make the diagnosis. We frequently find a four-plus spinal fluid with a negative blood Wassermann. We should not depend on the blood Wassermann alone in cases of this type where other findings are negative. The spinal fluid should always be examined before deciding that operative intervention is the best plan of treatment where the patient complains of abdominal pain and especially where girdle sensations are marked as in the case reported.

In view of the fact that Dr. Frank's patient had already been treated by means of mercury, iodide of potassium and arsphenamin without benefit, the result secured from nerve section is little short of marvelous.

John J. Moren: Dr. Frank has made a very interesting report. Personally I have observed only one instance in which similar operation was performed. The patient was a man operated upon by a surgeon in Chicago and unfortunately the man lost his spinal support and had to wear a brace. The operation did not completely relieve his girdle sensations or crisis. For a time the procdure described by Dr. Frank was looked upon with a great deal of satisfaction and promise, and while I am not certain about the matter yet I am satisfied neurologists have not seen the benefit from the operation they had hoped would occur. However, in the case reported, the operation was certainly productive of benefit and for that reason was worth while. We should welcome any procedure which will promise relief to these unfortunate individuals.

I have under observation now a man who has gastric crisis, a man in very bad physical condition, but I have been unable to induce him to take antiluetic treatment, in fact he will not take anything. If operation could relieve his symptoms it would certainly be a blessing to the patient and to his family.

In regard to the diagnosis: If this one point be remembered in differentiation between gastric crisis and abdominal pain due to other causes, the diagnosis should not be difficult: in gastric crisis there is always hypotonicity of the muscles with relaxation. This symptom is never observed in inflammatory lesions of the abdomen.

Stuart Graves: It seems hardly necessary to emphasize what Dr. Dowden has said about the diagnosis in cases such as Dr. Frank has reported. In the course of a very large number of Wassermann tests in connection with the clinics of the Louisville City Hospital every now and then we find on the history part of the slip which comes with the blood specimen, some reference to vague abdominal pains. In cases of this type the blood Wassermann is frequently negative, and whenever this is true I always write on the report the suggestion that lumbar puncture be made. In many instances the spinal fluid has been found positive where the blood had been negative. I think a Wasserman on the spinal fluid should always be made in cases of the type reported by Dr. Frank.

Cuthbert Thompson: I have listened with a great deal of interest and pleasure to Dr. Frank's report. I saw the patient with him before the operation, was present at the operation, and saw the man afterward. The patient was an absolute wreck before the operation; he was unable to take food without vomiting immediately afterwards. I never saw a greater change in a patient than occurred in this man following the operation. I think Dr. Frank and the patient are to be congratulated on the result obtained.

Wm. J. Young: Dr. Frank was certainly justified in resorting to operative measures in the case reported, inasmuch as intra-venous and intra-spinous treatment had failed to benefit the patient. It is pleasing to note that division of the spinal nerve roots relieved the pain, and both the patient and Dr. Frank are to be congratulated on the result obtained. I do not understand that Dr. Frank recommends this operation as a routine procedure before giving intra-venous and intra-spinous arsphenamin injections a trial. I believe these measures should be thoroughly used before resorting to such a drastic operative procedure.

I recall hearing Dr. Frank's preliminary report of this case about a year ago, shortly after the operation. Division of the spinal nerve roots is certainly a formidable procedure and one which I believe should be reserved for cases in which other measures have failed. In the case reported everything else seems to have been tried, and as favorable results were not secured the operation performed by Dr. Frank was justified. The procedure he has suggested may become an important factor in the treatment of tabetic crisis where other measures have failed, but it should not be advocated as a routine measure for reasons which are obvious.

L. W. Frank (closing): I thank the gentlemen for their liberal discussion. Of course I did not intend to advocate the general adoption of the operation described for relief of gastric crisis. I believe antiluetic treatment should first be given a thorough trial, and when this fails, operative measures are justifiable. The case mentioned in my report and others which have been recorded in the literature show that something can be accomplished by surgery when medical treatment has utterly failed in relieving the symptoms of tabetic crisis.

I do not believe the subsequent treatment which the patient received, i.e., the administration of mercury and potassium iodide by mouth could have prevented recurrence of pain and girdle sensations. He had been given antileutic treatment for a year prior to division of the nerve roots and no relief had been obtained. Nerve section was made rather high in the cord with the idea that if pain recurred the lower nervous could be divided later if necessary. So far that has not been necessary and I hope it will not be.

In the diagnosis of tabetic crisis other intra-abdominal lesions must be excluded and this can usually be done by careful investigation. Two or three instances are recalled where other surgeons have operated under the diagnosis of gall stones or gastric ulcer and nothing pathologic found. In one case the roentgenologist made the diagnosis of gastric ulcer and the family physician insisted upon operation. No ulcer was found and the symptoms disappeared under antiluetic treatment.

In the case reported we promised the patient nothing from the operation, but I am glad to say improvement was immediate and he is now free from symptoms.

Cineplastic Amputation.—Bosch Arana has been a pioneer in this line of adapting the stump for volitional control of the prosthesis. He here reviews the various technics in vogue, and his own experience with his special method, giving twenty-one large illustrations in addition to five moving picture films showing the amputated at work with their artificial hands functioning by means of the muscles in the stump.

TESTICULAR TRANSPLANTATION FROM APES TO MAN WITH HISTOLOGICAL FINDINGS.

By Max Thorek, Chicago.

In this preliminary report I wish to refer to some personal experimental and clinical work in which I have succeeded in transplanting testicles from apes to man and vascularization with histological verification of the taking of such grafts.

Judged by the prominence given by the lay press to this subject it is one that is of high interest to people at large. And it is desirable that practitioners in general should have clear ideas of the great surgical condition of the question as very erroneous opinions have been propagated regarding it. Although much has been written and much more surmised regarding the actual effects of such transplantations, yet as a matter of fact there are but few cases of human testicular transplantation on record which have been followed by any durable degree of success. In fewer cases still do the published reports of such cases give any histological proof of the "taking" of the graft or of its actual condition after a period sufficient to test its "taking" or otherwise; we have but few examples in medical literature which show that the vascularization of such grafts was clearly and unquestionably proved.

But before testicular transplantation can become a matter of practical surgery it is necessary that surgeons should be assured that such grafts can become vascularized and that the tissue will function as living tissue. The value of such surgery must lie in the verification of these facts; any method of transplantation and all clinical reports of such surgery must ultimately be judged by the criterion of the taking and functioning of the graft.

When we study most of the cases in literature we find that they do not fulfill essential conditions. The graft has either been rejected or has become resorbed; and whatever effects it may have have been of a transient nature.

Brown-Sequard was the first in 1899 to show that opotherapy with testicular extract brought about physical and sexual well-being. The extensive literature accumulated since then on this subject shows that the testicle has a double secretion; that of the sperm cells proper or seminiferous tubuli; and that of the intestitial glandular substance, the so-called puberty gland. The secretion of the seminiferous tubules alone is concerned with fecundation. The secretion of the testicular gland has been clearly proved by a multitude of investigators to be a hormone acting on the general system. This is a male sexual hormone which acts as a sex stimulant and is responsible for the development and maintenance of sex character and desire. As far as known it is not connected with the generative function.

The knowledge gained as well as the actual findings of Brown-Sequard regarding the good effects of glandular opotherapy in reviving physical and sexual well-being in man led naturally to attempts having in view the induction of the special hormonic secretion in organisms in which it was deficient. The best known of these methods is that of testicle transplantation.

Much experimental work was done in animal testicular grafting, both as regards auto— and hetero-grafts. The general results showed that when such grafts "took" they produced the typical demonstrative effects which were theoretically expected from the physiological working of a testicular hormone. The difficulties of obtaining vascularization in the grafted tissue which was frequently observed might perhaps be accounted for either because the technique was faulty, or because the graft was implanted in an unsuitable site, or perhaps from both causes together.

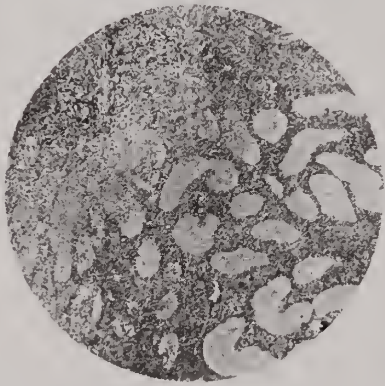

Fig. 1. Photomicrograph. Transplant of testes in higher ape into human. Author's technique. Magnification 60 diameters. Observe regression of tubuli semiferi, proliferation of Interstetum and vasculation. Removed four months after transplant.

The most brilliant experimental results in animals were undoubtedly those obtained in 1919 by Voronoff of Paris. These results were supported by the histological findings and proved that transplantation of testicular tissue from young to old animals of the same species was followed by vitality of the graft and could be expected to be followed by clinically demonstrable renewal of physical and sexual vigor and sexual impulses which had become lost.

The attempts to obtain a renewal of physical and sexual well-being in man by testicular grafting have only been partly successful.

Such transplantations have usually been made with human testicles; but in a few cases animal testicles have been employed which generally promply sloughed. When such grafts were retained, and as long as they functioned, there appears to have been no doubt that they did effectually promote physical and sexual improvement in the patient in whom such a transplantation was made.

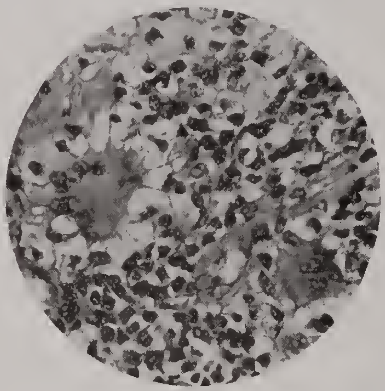

Fig. 2. Magnification 560 diameters, observe Leydig Cells, .. Grant Cells and abundance of cells life in well nourished area.

It was clear to me therefore that if some practical method could be found by which the taking of a testicular graft could be assured, there could be but little doubt that it could be counted upon to restore lost physical and sexual capacity by the effects of its particular hormone on the whole organism.

Study of the literature of the subject, and especially after visiting the clinics of Voronoff of Paris and Steinach in Vienna I became convinced that testicular transplantation could become a matter of practical surgery.

The difficulty of obtaining vascularization could I believe be overcome by a suitable method of implanting the graft and selection of a better site for it than those usually adopted.

The great difficulty however lay in obtaining suitable material for grafting. That human testicular tissue if young and obtained from a subject free from disease was the ideal material there could be no doubt, but such material was manifestly for very obvious reasons difficult to obtain. The next best thing was to obtain material from animals of the nearest biological approach to man although the results of experimental transplantation from animals to man did not hold out hope for much success.

For some years I have been engaged in a number of experimental and clinical investigations connected with this subject, with the view to reducing the operative technique to a basis which would make it practical and fairly certain as regards results. In this preliminary report I can only say that I have devised a new technique in treating and implanting the graft which I call the "lantern" method of testicular transplantation and which has given me most satisfactory results as regards the taking and vascularization of the graft.

I have also succeeded in successfully transplanting testicles from the higher apes to man and have obtained clinical and histological results which are in every respect analgous to the best results previously obtained in transplantation of human testicles.

Such testicles transplanted from apes have been removed from the human hosts after several months and are histologically proved to be living, well vascularized, and with full activity of the interstitial glandular tissue. This as far as I know is the first time that such a result in a transplant from ape to man has been histologically verified. The accompanying illustration is the reproduction of the microscopic examination of a section from a testicle removed several months after transplantation.

It shows regression of the seminiferous tubules, proliferation of the interstitial elements, and vascularization.

I have made a large number of such transplantations from ape to man; and, in the cases in which I have employed my improved lantern technique, I have almost invariably obtained excellent results. The full details of my surgical method and clinical findings in all these cases will form the subject of a latter complete report.

Butyn, A New Synthetic Local Anesthetic: Report Concerning Clinical Use.—A special report of the Committee on Local Anesthesia of the Section on Local Anesthesia of the Section on Ophthalmology of the A. M. A. on butyn is made by Albert E. Bulson, Jr., Fort Wayne, Ind. (Journal A. M. A., Feb. 4, 1922). The results of the clinical and experimental use of butyn seem to justify the committee in arriving at the following conclusions: (1) It is more powerful than cocain, a smaller quantity being required. (2) It acts more rapidly than cocain. (3) Its action is more prolonged than that of cocain. (4) According to our experience to date, butyn in the quantity required is less than cocain. (5) It produces no drying effect on tissues. (6) It produces no change in the size of the pupil. (7) It has no ischemic effect and therefore causes no shrinking of tissues. (8) It can be boiled without impairing its anesthetic efficiency.

AN IMPROVISED TECHNIQUE FOR DIRECT OR EXTERNAL TRACHEAL INSUFFLATION, REPORT OF ADMINISTRATION.*

By W. Hamilton Long, Louisville.

I recently had occasion to administer five anesthesias to a young woman, who wore for several months a tracheotomy tube, during which time at intervals of about three weeks intra-laryngeal and intratracheal dilatation was performed; also at each of these procedures fragments of polypoid tissue or exuberant granulations were removed through the Jackson direct view laryngoscope. In administering these anesthesias, for the procedures above described, we hit upon, and found very satisfactory, a modified technique, which we believe is, in some of its aspects, new.

Not knowing the particulars and details of the case before arriving at the hospital the first time, we lacked, of the equipment usually considered necessary for endotracheal insufflation, the mercury manometer, which attaches to this apparatus and which is so seldom used, that it is not carried. It is the safety valve of the technic and its object is to "blow off" before an intra-pulmonary pressure is reached that can endanger the lung.

After a routine gas-ether induction, bringing the patient well into the second stratum of the third stage of ether anesthesia (Guedel's classification) the face mask was abandoned and, having as has been said, a tracheotomy tube in situ, a rubber tube was fitted into it so snugly as to make the connection air tight. This was in turn connected with the Gwathmey apparatus, and in lieu of the mercury gauge, over the place for its attachment I fastened a small rubber bag, the retention bag of a foot bellows. The agent was warmed ether vapor, oxygenated; enough oxygen being given constantly to bubble through the necessary quantity of vapor without augmentation by pump or bellows.

In this way we were pleased to observe that the little bag responded perfectly to the respiration, so snug were all attachments. It was a direct tracheal insufflation with positive rebreathing.

Having a constant interchange of air between the bag and the lungs, we felt perfectly safe at all times as to the intra-pulmonary tension, as there was no leakage and seemed to be no backflow into the pharynx at the site of the trecheotomy tube. At any time that breathing bag became more than three-fourths full at expiration, it was simply pulled off and emptied, permitted to refill with oxygen to about half distention and proceeded.

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*Read before the Jefferson County Medical Society.

GLENARD'S DISEASE*

By J. O. Jenkins, Newport.

In the well remembered school days of our somewhat distant past, our teachers almost to a man (or woman) would proudly pen various texts and elevating reminders in beautiful Spencerian characters at the top of our writing page, and stimulate our budding minds to emulate the truths inscribed. We remembered one of these truths very well because its admonitions rang upon our ears so frequently and forcibly; "A place for everything and everything in its place." Could anything be simpler and more important in general affairs of personal comfort, than to know, that a thing wanted was invariably to be found at a certain locality? Thus, when the Creator constructed man, He put all the various organs and appendages in appropriate corners and tied them well and fast to strong structures that they might stay put. But he had probably misjudged the erratic nature of his masterpiece and his component parts, else why should we meet with the so-called Glenard's disease in which, generally speaking, nothing is in place?

Without entering into a high scientific consideration of the reasons for this disregard of established anatomical law, we may in a common-place manner, discuss some of the salient features so frequently met.

Quite a number of causes apparently favor a shifting of the abdominal organs from their normal positions, either as a temporary incident as a sequel to systemic shock from previous sickness, or in a more permanent or chronic form from carelessness or neglect of proper health rules or treatment; or, to a continuation of the overstrain placed on sustaining structures. It has seemed to the essayist, that the anatomical configuration is responsible for a certain percent of the dislocations. Given an individual constructed as a cylinder or stove pipe, with shallow iliac and pubic plain; a minor sacro-lumbar anterior projection with a flattened lumbar anterior curve, we may anticipate a concentration of both force and weight on the organs or structures subjected to the downward pressure of active effort.

As we find more females affected with Splanchnoptosis than males, may we not logically regard the exemption of the male as largely due to his more rugged structure, a denser musculature, freedom from compressing garments, better habits of function, vigorous exercise in the form of varied labor, and greater freedom from excessive accumulations of fat?

The thought also occurs, that the disease developing in laboring women may be occupational, in that long continued sitting as in sewing etc., in rigid clothing, or in long standing without proper rest, invites displacement from the muscle fatigue and tissue exhaustion. In either of the above instances, ligament atrophy may be developed to further add to the promotion of the distability. Pregnancy is one important factor in the production of Splanchnoptosis, especially in multipara, and the obstetrician should always bear in mind the dangers surrounding the patient for some weeks following delivery. Much time must be allowed nature to restore the organic, circulatory and muscular systems.

Abdominal growths or similiar conditions will produce much the same effects as pregnancy in displacing viscera; but, after their removal there is often a rapid recovery from the misplacements.

Muscle tire and muscle strain must be enumerated among the causes producing Visceroptosis among the laboring class, by the destruction of systemic tone and are as baneful in their effects as a protracted debilitating sickness.

An overloaded atonic colon is a very real cause of the various prolapses because of the heavy, dragging weight put upon the gastric region causing a downward progress by the stomach, duodenum and jejunum.

We may pause here to quote Shakespeare, for "One woe doth on another tread, so fast they come," and it is true.

Let one organ become displaced and another is soon added to it, until a riot of distress and misery mentally and morally unbalances the patient and the doctor's erstwhile good nature, becomes a symposium of harrowing failures. It is scarcely possible to index the symptoms of even a moderate degree of Enteroptosis; they are so numerous and embrace everything. Certain ones stand out a bit more prominent than others but who can count for all the vagaries of the nervous, digestive or circulatory disturbances and place a positive finger on the *locus minoris resistentia* and placidly say, "I have it"?

Disturbances of digestion are probably more frequently brought to the notice of the physician than other features, but even these may be reflex and dependant on the distress arising in some other than the stomach or intestine.

The individual usually develops a progressive hyperacid dyspepsia with its annoying pyrosis, flatulence, distention, constipation or diarrhoea, nausea, anorexia, polydipsia, gastralgia, pylorospasm and enteralgia, and a train of associating distresses which are very annoying to him and most provoking to the doctor.

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*Read before the Harrison County Medical Society.

Add to this collection of symptoms, those disorders of the nervous system as a secondary entailment; those neuralgias, headaches and mental depressions either active or submerged, and we may forgive a patient for expressing a strong desire to cut his life short.

As to diagnosis, I am sure your own experiences with these victims will be sufficient to cause you to read the subjective symptoms aright.

Supplement the history with one or many physicial examinations, the X Ray fluoroscope or photograph and you will be sure to arrive at a true and definite judgment of the morbidity, and be ready to develop the process of restoration. Except in the mildest cases of Enteroptosis the patient and doctor must be prepared for a long siege of methodical care and observation, if a cure is to result. It means the safe-guarding of every hygienic and physiological process and habit of life and function. A patient may be deemed a prisoner to himself, so important is the daily routine.

The prospect of ultimate recovery is fair in the majority of cases, except in those in whom the displacement is the result of wasting disease; or, in those obese persons who have suddenly lost their fat.

Also, those persons whose social conditions prevents a ready observance of treatment, or whose advancing age has robbed their muscles of resiliency. In the cure of Splanchnoptosis, the first important item of treatment is how to promote the recovery of muscle and visceral tone. As long as this is below normal, failure must result though it may be necessary to relieve some of the more irritating symptoms for the comfort of the patient. Dislocated organs must be replaced and retained in position: function must be reestablished and an efficient nutrition must be maintained. If we are to interest ourselves in the patient's recovery, she should repose absolute confidence in the wisdom of her physician and loyally and faithfully co-operate with him in his endeavor to cure. Half hearted efforts will be unsatisfactory to both.

Absolute rest, after the Wier Mitchell method, rest in bed, is essential as giving the muscles and body in general, the opportunity to regain strength and tone; to relieve ligament strain and to restore an overloaded venous congestion. To promote this, judicious daily exercise of passive or resistive motion and massage are ver yuseful.

To promote the replacement of the organs at fault, it is advisable to elevate the foot of the bed from six to twelve inches, so that the body occupies an inclined plane. It is unnecessary to say, this procedure should demand the use of a comfortable slat bed-stead and hard mattress. Feather beds and a soft springy wire frame may be more comfortable, but they do not give good results. The skillful application of the faradic current to motor points might be beneficial in aiding the contraction of the relaxed ligaments or muscles. The seances should be short, not too frequently repeated and of moderate intensity. The galvanic current may be similiarly applied to the sensory or sympathetic center or ganglia, or combinations of the two modalities may be chosen for special reasons. The high frequency currents are useful when derived from a large coil through a resonator of large volume and pressure.

The same may be said of the static modality, and the static spark is sometimes quite valuable, provided the patient will endure the slight pain of the electric discharge. Not infrequently much support to the crippled abdominal visera and muscles, and a consequent larger degree of comfort may be supplied the patient through the use of a firm well fitting bandage. This bandage should be made of firm non-elastic material like high-grade drilling, and so shaped that the lower belly is elevated, and sustained in position. The Storm bandage will do this, but except for very large and heavy abdomens, it is cumbersome.

A wide strip of Z. O. or pliable mole-skin plaster will often answer better than the removable bandage. The Z. O. plaster should be from 6 to 7 inches wide in the center and about 36 to 40 inches long and so shaped with the scissors that the lower edge lies just above the ilio-pubic line that it may not interfere with walking or sitting.

The top of the plaster which acts as a band at the waist line, should be not less than two inches wide. To apply this type of bandage, the abdomen should be shaved of hair and sterilized with ether and the lower point of the bandage rounded off. The two large pieces trimmed off in shaping the ilio-pubic border are used at the front of the abdomen to reinforce the sustaining force of the bandage, which is now placed on the belly with a sufficient traction upwards; the narrow strips being carried around the waist in such a direction that the ends are adherent over the two or three lower ribs of opposite sides of the body.

The patient should be in the dorsal position with the hips elevated during the application, so as to replace the viscera as much as possible. No pads or compresses are used, but the Z. O. plaster is applied directly to the skin. The bandage may remain thus for from three to six weeks when it should be renewed. To accomplish this, the plaster should be stripped off, a warm bath given and the skin powdered with talcum or zinc sterate and allowed to revive. After twenty-four or thirty six hours another bandage may be applied for a like period. Narrower adhesive strips may take the place of the broad one, but are not as effective nor as satisfactory. For those whose condition is not so advanced or urgent, and who may be permitted being on their feet a portion of the time, the gymnasium offers them a wholesome assistance toward recovery. Here, they may immensely increase the strength and tone of the diaphragm and abdominal muscles by series of educational exercises under the direct guidance at the physician or competent turn-master. Clothed in an athletic suit having no restrictive band around the waist or abdomen, she may be progressively given instruction while laying on the mat, in chest and abdominal breathing: trunk, abdominal and leg exercises. Later, the trapeze should be used, and she should be taught to hang by the knees and to accomplish the associated contortions.

It is worthy of note that a gymnast, contortionist or trapeze performer afflicted with any form of Splanchnoptosis is seldom or never heard of. One of the most important factors in conjunction with rest is the dietary and the method of feeding the patient. If an unrestricted feeding of miscellaneous articles is allowed, an overload of food may be expected if the appetite is good, and a consequent indigestion developed. Therefore, a careful supervision of the diet should be a routine requisite of any method. Beginning with a fast of one or two days, the diet should progress according to indications and results from liquid to light, soft, convalescent and finally to a selected general diet. Much depends upon the quantity of food introduced into the stomach at a feeding; too much in the weakened condition of the organ will produce a revolt. Probably not more than from two to six ounces of well prepared and well chewed food should be taken at one time.

A meal of this quantity given every two hours, will provide more real nutrition and energy than a larger feeding less often.

There should be no soups nor broths allowed, neither drinking of fluids with the meal. Drink between meals, but eat them dry. Of course alcoholics in any form are usually excluded. Experience teaches certain things, and as a rule, the use of pastry, greasy, fried, spice and spicy food should be forbidden, neither should salt-cured, potted nor the heavier meats be eaten; a patient is better off without meat.

Otherwise, the diet may consist of eggs, milk, buttermilk, sour-milk, tripe cheese, cottage cheese, legumes, fresh vegetables, fruit cooked or raw as found best, as is consistent with the digestive forces. The aim being to feed in small doses containing a maximum intensity of nutrition without loading the stomach or intestine with bulky refuse prone to produce flatulence. A restoration of the muscular activity is thus favored, and the dilated stomach and duodenum is freed from the excessive formation of gas and the distressing bloatings and belchings disappear. Taking the load off the upper digestive track invites a better functioning of the ilium, colon and rectum and shortly they respond in tone, and constipation is abated, or at least becomes responsive to a milder class of laxatives. Except for their toning properties, drugs accomplish but little: for, otherwise than improving certain errors of nutrition, they cannot correct a fault so clearly mechanical. Soda Bicarbonate, Bismuth, Magnesia Carbonate, Nux Vomca, Pepsin, Pancreatin, Hydrastia and many other drugs have been given with benefit. Another has lately been added, the extracted secretion of the digestive glands of the intestinal tact. It seems to be quite a valuable addition and to take the place of many of the older remedies. When combined with the method outlined, it is worth trying.

Surgery is sometimes referred to as the panacea or ultimate cure of the various ptoses of the kidneys or abdominal vicera. Possibly some have been cured; but, if the muscular strength can not be restored or maintained, or, if the habits of life are not changed, a recurrence may be expected. Extripation of the colon is much like amputating a leg to cure a corn on the foot; the survivor will surely need a crutch to limp along through life. In conclusion, the essayist sees the best prospects of a cure with the least danger to life, in the following suggestions:

1. Prolonged rest in a more or less inverted position.

2. Methodical and skillful exercise; and electricity.

3. An extended use of carefully applied abdominal (Rose) support.

4. Careful dietary and feeding.

5. Drugs calculated to restore normal secretion and function.

THE INTERPRETATION AND MANAGEMENT OF CERTAIN TYPES OF UTERINE HEMORRHAGE*

By J. B. Lukins, Louisville.

The uterus is the only organ in the human body which is subject to normal periods of bleeding. This strange phenomenon (menstruation) has never been perfectly understood. That it is due to the internal secretion of the ovary is the theory most generally accepted, and the corpus luteum is the factor, as we now believe, which is responsible for this menstrual hormone. Any disturbance of this ovarian function, therefore, must necessarily influence uterine bleeding, either with or without the presence of pelvic neoplasms or inflammations; and since we do not fully understand normal uterine bleeding, it follows that we cannot always account "for the why and how" of bloody flows which are irregular and sometimes assume serious proportions. No one has ever explained why a uterus harboring a small fibrous nodule often bleeds excessively, whereas a similar tumor of enormous size may cause no bleeding whatever.

Uterine hemorrhage is a common symptom occuring either as menorrhagia or metrorrhagia in practically all gynecological conditions. To emphasize the importance of determining not only the source but also the cause of this bleeding, and to select the treatment best suited to the individual case, is the purpose of this paper and case reports.

The universal dependence of our forefathers was ergot, given for all forms of uterine hemorrhage. Then came the gynecologist with the tampon promising more certain and effective relief; and finally the modern surgeon bearing in his gloved hand the sterile currette —a sure remedy when everything else had failed. All these agencies have been accepted and their merit proven, but, except for emergency measures, it is doubtful whether they possess any real worth; and we must admit that their empirical application has been productive of some harm in that they have concealed outward signs of trouble and caused us to cease our efforts in the search for the real cause of the hemorrhage and prevented our instituting adequate measures for the production of permanent relief.

Whether we are dealing with a bleeding uterus or a bleeding woman is probably the first thing to be determined. Leaving hemorrhages incident to pregnancy and labor out of consideration, we may say that all hemorrhages from the uterus may be divided as to cause into pelvic and systemic; and the pelvic conditions if not functional are either inflammatory or neoplastic in type.

A systemic cause of uterine hemorrhage which has recently received much consideration is thyroid hypo-function. The excessive bleeding occurs most frequently at puberty and the menopause; there may or may not be a palpable enlargement of the thyroid gland. These patients "bleed and grow fat," yet, notwithstanding the excessive loss of blood, they rarely show a marked reduction in hemoglobin.

Severe acute systemic infections, such as typhoid fever, malaria and influenza, often present an excessive menstrual flow as a prodormal symptom, while among the chronic systemic infections syphilis and tuberculosis stand in the foreground as causes of persistent uterine bleeding. It is said that from five to six per cent of all gynecological patients yield a positive Wassermann reaction.

Erosions of the cervix, endometritis and salpigitis are inflammatory conditions practically always giving rise to more or less hemorrhage. The bleeding from salpingitis is usually in the form of menorrhagia and is always attended by pain, tenderness, and sometimes fever. In cervical erosions the everted mucosa is engorged to such an extent that it bleeds upon the slightest manipulation and a small amount of blood is usually observed after coitus.

In a paper written several years ago I emphasized the importance of early diagnosis of uterine carcinoma placing considerable stress upon the point that hemorrhage was an early symptom and pain a late one. I can hardly more than mention the subject here, but carcinoma is a cause of uterine hemorrhage of such extreme gravity to the patient and so often overlooked that it must always be included in our consideration as one of the possible causative factors.

Perhaps the simplest cause of uterime hemorrhage is a cervical polyp. It is often surprising what troublesome and persistent bleeding such polypi may some times produce. They can usually be seen or felt and are easily removed by twisting or snaring.

Ovarian cysts disturb the menstrual flow in many ways. Hemorrhage may be continuous for several weeks, but the most frequent expression I have noted in the history of such patients is: "I menstruate twice nearly every month." The woman rarely has an extensive hemorrhage such as occurs in carcinoma or fibroid tumor.

Can anything be gained by a careful study of the menstrual history of a patient suspected of having a fibroid tumor? No less an authority than the late Dr. John B. Murphy said that a fibroid tumor disturbs mensruation in a systematic way. First, comes the increase in the quantity of the flow; second, the increase in the duration; third, the patients practically never have an intermenstrual flow; fourth, the menopause is postponed by the tumor,—the fibroid patient at forty-eight, forty-nine or fifty years of age frequently is still menstruating; fifth, in patients with fibroids the flow practically never ceases for one, two or three months and then commences again. When such patients reach the menopause the flow suddenly ceases. The maintenance of a regular flow speaks strongly in favor of the diagnosis of fibroid and against carcinoma. A woman who ceases to mentruate at the normal age, say forty-five, and begins to flow again after several years, say at fifty-five or fifty-six, has in all probability a carcinoma and not a fibroid tumor.

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*Read before the Jefferson County Medical Society.

It is well known from clinical experience that bleeding from myomatous tumors is generally speaking more profuse in the submucous type than in the intramural or subperitoneal variety.

Some of our ablest investigators have shown that the absorption of toxins incident to the growth of fibroid tumors may account for certain changes in the heart muscle which undoubtedly occur in a high percentage of cases. The frequency of nervous symptoms, the large number of kidney infections in cases where there is no pressure upon the ureter, and the frequency with which we note disturbance of heart action which disappears after removal of the tumor, all point strongly in favor of such a theory.

A striking illustration of this occurred in the female white surgical ward of the Louisville City Hospital during my service last spring: Mrs. L., aged thirty-five years, family history unimportant, married twice, no pregnancies, complained of "smothering spells" and shortness of breath with loss of weight and strength. Two years previously she began to flood at each menstrual period. This had continued every month until she was so weak she could not walk. In appearance this woman a cardio-renal case in an advanced stage.

Examination disclosed the presence of a small mass in the pelvis, a very distinct mitral regurgitant murmur, and a large amount of albumin in the urine. As the pulse was irregular and the patient had been unable to retain any food for several days, the case was considered inoperable at that time. After a rest in bed of six days she was again a blood transfusion of 250 c.c. Forty-eight hours afterward I opened the abdomen and removed a submucous fibroid about the size of a small grape fruit. The patient made a splendid recovery and three weeks afer the operation no heart murmur could be heard, the albumin had disappeared from the urine, her cheeks were of normal color, her appetite was good, and she was bright and cheerful. This case is interesting in that it illustrates the exterme degree of secondary anemia which may follow a small fibroid, and also because of the heart and kidney changes which I believe were partly toxic from the fibroid and partly due to the great loss of blood.

Perhaps the most interesting type of uterine hemorrhage is the kind which is observed not infrequently in the entire absence of any demonstrable pelvic disease. This form of bleeding has been spoken of variously as functional, idopathic or essential uterine hemorrhage. It is most frequently seen at the two extremes of menstrual life, puberty and the menopause. The hemorrhage is often persistent and may be profuse. These patients are usually curetted, which treatment is beneficial in only a small percentage of instances.

The following case occured in my private practice: Mrs. J. W., aged thirty-four, first menstruation at age of thirteen, mother of six children, youngest aged thirteen months, two miscarriages, menses irregular for ten years, often every three weeks, sometimes lasting three weeks, at one time lasting three months.

Three years ago I curetted this patient thoroughly. For six or eight months following the operation menstruation was regular, but in the last eighteen months it had been very profuse. On May 24th, 1920, I did a curettage and through the courtesy of Dr. L. Wallace Frank applied fifty milligrams of radium to the cevical canal for twenty-four hours. She left the hospital the next day and there has been no hemorrhage since. She is perfectly well so far as any pelvic abnormalities are concerned.

In mentioning the foregoing case and the method of treatment used I do not mean to include consideration of the broad application of radium as practiced by Dr. Howard Kelly and others. I only refer to the case as one of functional or essential uterine hemorrhage that was not cured by the curette.

THE ESOPHAGOSCOPE IN DIAGNOSIS AND TREATMENT*

By Marion E. Pirkey, Louisville.

The esophagus, from its anatomical position, is difficult of access by the ordinary methods of clinical examination. Its surgery by external incision is attended with high mortality ,because of the important structures through which it may be approached. Exploratory incision has no place in its surgery. Many correct diagnosis have been made by exclusion and clinical data, but this method must necessarily be attended with a high percentage of error as very often serious conditions present very few symptoms.

Case VII

The roentgen-ray is invaluable in showing the size, constriction, motion and location of foreign bodies, etc. However, it gives contributory evidence of disease without furnishing a positive diagnosis. We recognize the presence of a stricture by this patient do only by careful examination of the patient do we form an opinion as to its etiology. A stricture being present, we eliminate all possible causes arriving at a diagnosis by exclusion. The roentgen-ray is an invaluable adjunct to any examination of the esophagus and should invariably be used as a preliminary to any esophageal examination. It will tell us of an encroaching aneurism or abscess, conditions which very often preclude any instrumentation on account of the possibility of sudden rupture due to thinning of the esophageal wall. If a foreign body is present information as to its probable size and shape is necessary, so that we may be prepared for the mechanical difficulties which may be encountered in its removal.

In the electrically lighted esophagoscope we have an instrument with which the esophagus may be inspected by sight, and the condition of the mucous membrane, the presence of foreign bodies, strictures, tumors, etc., can be demonstrated. And if treatment is necessary it can be done through the tube.

The indications as stated by Jackson are: any abnormal sensation referable to the region, or to the function of the esophagus, noticed by the paient, calls for immediate esophagoscopy. Only in this way can we hope to discover diverticula, esophagitis, lues, esophagismus, cardispasm, superficial ulcer, and other curable lesions in time to effect a cure. Any sensation such as "a lump rising in the throat," the so called globus hystericus, calls for esophagoscopy. In the absence of any symptoms, whatever it is advisable to make an exploratory esophagoscopy in cases of tracheal or high bronchial or peri-bronchial mediastinal disease for the possibility of information as to peri-esophageal disease.

It is not the purpose of this paper to discuss this subject other than to call attention to the value of the esophagoscope in diagnosis and treatment, and to cite a few cases briefly. It could not be expected that cities in which the value of the esophagoscope has not been demonstrated should use it to the extent recommended by Dr. Jackson, but as its value is appreciated it will be more frequently used and will be a distinct diagnostic aid.

CASE REPORTED

CASE 1. Male, aged twenty-five, laborer; family history negative; personal history negative except for diseases of childhood. Present condition; for the last three weeks has been unable to work on account of a sensation of constriction in the region of the larynx. On exercise violent paroxysms occur with great difficulty in breathing. He is also unable to swallow solid food.

Routine examination of the throat was negative. Esophageal examination disclosed a small ulcerated area just below the introitus. Through the esophagoscope a local application of four per cent silver nitrate was made and repeated in four days. After that time the symptoms disappeared and two months later there had been no recurrence. The writer has observed six cases of this type in which the symptoms were identical varying only in intensity. They all responded readily to local treatment.

CASE II. Male, aged sixty, seen at the Louisville City Hospital. The patient had been steadily at work until one week prior to admission. During a general examination to determine the extent of his trouble a throat examination was requested as he complained of slight difficulty in swallowing. The throat and pharynx being negative an esophageal investigation was made which revealed a stricture eleven inches from the upper teeth. Attached to the wall of the esophagues was a pedunculated mass; surrounding this and below was an ulcerated area covered with grayish membrane.

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*Read before the Jefferson County Medical Society.

Necropsy two weeks later showed a carcinoma starting from the point mentioned and extending downward through the stomach and into the duodenum. This case is mentioned as an example of the insidious onset of trouble in this region and the extent to which it may progress before the patient seeks relief.

CASE III. Boy, aged one and a half years, seen through the courtesy of Dr. White and Dr. Grigsby. Personal history: several weeks previously he had swallowed a small amount of lye. This had resulted in no immediate serious symptoms until four days before admitance to the Childrens Free Hospital during which time he had been unable to swallow liquids. On account of the age of the child we were unable to obtain a satisfactory X-Ray plate and an esophageal examination was advised.

Under light ether anesthesia, the esophagoscope being introduced, a stricture 1 mm. in diameter was found six and one-half inches from upper teeth. Under direct vision the stricture was dilated by olive tipped bougie to No. 16 French size. On the fifth and tenth days a second and third dilatation was practiced larger bougies being used. From the first dilatation the child could retain liquids and when sent home could drink a cup of milk without difficulty.

When the child returned a month later his general condition was good; another dilatation was practiced and he was advised to return in one month for further observation. Six weeks later his general condition was still iood and there was only a slight narrowing at site of stricture.

CASE IV. Baby F., aged two years, referred by Dr. Ritter. Present history: while playing the child swallowed a five cent piece (nickel) about a week previously. The family physician was consulted who advised the family not to worry, to have the child eat some potatoes and bread, that it would pass the nickel through the gastro-intestinal tract. The next day the child could only take liquids. This continued for a couple of days when the family physician was again consulted and an X-Ray plate was made. The family was assured that there was no trouble.

The child continued to do badly and was brought to Louisville for consultation with Dr. Ritter. On cross-questioning the mother it was ascertained that X-Ray plates of the stomach and abdomen had been made but none of the neck and upper chest. Roentgen-ray examination was made by Dr. Keith who reported a foreign body, probably a five cent piece, in the esophagus.

At St. Mary & Elizabeth Hospital an esophageal examination under light ether anesthesia was made. Finding great edema prevented proper exposure of the foreign body, after fifteen minutes search the procedure was discontinued. Two days later another esophagoscopy was done. At this time the child was in extremely bad condition, temperature 102 degrees F., and had a septic appearance. The nickel was immediately exposed and removed with forceps. The child made a complete recovery.

CASE V. From the same locality two months later a second "nickel case" was referred. In this instance, however, the foreign body was removed within twelve hours after being swallowed, at St. Joseph Infirmary. This nickel was in a child two years old also and was in the same relative position in the esophagus. It was exposed with the esophagoscope and removed by forceps.

CASE VI. A child twelve years of age was referred by Dr. Maupin with Dr. Abell in consultation. Present complaint: four days previously the girl had swallowed a silver half dollar. There was difficulty and pain on swallowing especially when solid food was taken. Roentgen-ray examination showed the coin in the esophagus on a level with the first rib. Dr. Abell was prepared to do an external operation if esophagoscopy was unsuccessful.

At St. Joseph Infirmary under ether anesthesia an esophagoscope was introduced and the coin seized. The forceps failed to hold the foreign body and during manipulation it escaped into the stomach. An X-Ray plate was made immediately and the esophagoscopic findings confirmed. A gastrotomy was performed by Dr. Abell and the half dollar removed without difficulty. The patient had an uneventful convalescence and made a complete recovery.

CASE VII. Boy, aged twelve years, referred by Dr. Strond. Present complaint: while scuffling with other boys a silver quarter, placed in his mouth for safety, was swallowed. His symptoms were pain and difficulty in swallowing. He was seen a few hours after the accident and roentgen-ray examination advised. The fluoroscope was used by Dr. Kerr who reported a foreign body on a level with the upper sternum. At the Louisville City Hospital the next day under light ether anesthesia esophagoscopy was practiced and the coin removed through the mouth. The patient made a complete recovery.

CASE. VIII. A female, aged sixty years, general condition good; urinalysis negative. Present condition: twenty-four hours previously while eating dinner patient had agonizing pain in throat due to swallowing a chicken bone. She had consulted several physicians who referred her for esophageal examination. When seen the patient was suffering acutely being unable to swallow either liquid or solid food.

An X-Ray plate was made which was negative. Fluoroscopic examination after bismuth introduction showed a spasm of halting of the bismuth about on a level with the cricoid cartilage.

Under cocain anesthesia esophagoscopy was attempted which failed due to the intense spasm. Ether was then given and the esophagoscope was introduced without difficulty. The chicken bone was exposed, there was some esophagitis with considerable edema above, both ends of the bone being embedded in the esophagus. The foreign body, a chicken bone one and a quarter inches long, was removed without difficulty. The after treatment given was small doses of bismuth subnitrate every two hours. The patient left the hospital on the fifth day convalescent. She reported a month later in good health with no symptoms referable to the throat.

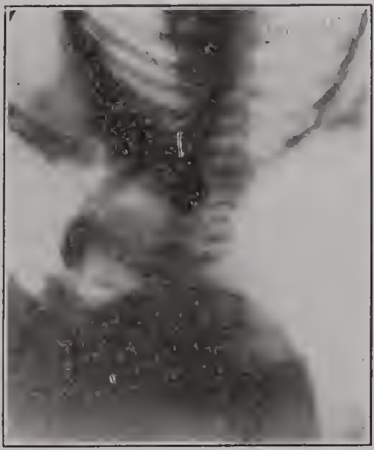
CASE IX. Baby, aged one and a half years, swallowed a circular piece of tin which lodged in the esophagus. After this time the child was still able to swallow liquids but suffered pain and discomfort in the throat. When seen at the Childrens' Free Hospital four days after the accident the general condition of the child was good, temperature normal. Roentgen-ray examination by Dr. Bayless showed a circular foreign body in upper end of the esophagus.

Under light ether anesthesia esophagoscopy was done. Where the foreign body was located there was a small area of esophagitis. The foreign body was removed without difficulty through the mouth.

The child was dismissed from the hospital in three days and made an uneventful recovery.

CASE X. A woman aged thirty years. Present complaint: half an hour previously she had swallowed an ordinary straight pin which was now causing pain in the region of the larynx. Examination with the laryngeal mirror disclosed a pin with the point in the posterior esophageal wall and the head resting on the arytenoid cartilage, apparently just ready to fall into the trachea. The patient was immediately placed on a table with the head lowered and an esophagoscope introduced without anesthesia. The pin was then siezed with alligator forceps and removed without difficulty.

This case is of interest because of the great potential danger had the pin become dislodged and dropped into the trachea. This accident would probably have occured had the attempt at removal been made by the indirect method.



Case IX

CONCLUSIONS

(1) The anesthesia used in esophagoscopy should be by preference—local anesthesia in adults and no anesthesia in children, although in very nervous patients or in those having intense spasm or large foreign bodies there is is no objection to the use of ether anesthesia provided the cough reflex is not abolished. When this is used, however, the time of operation should not exceed ten or fifteen minutes in children. Chloroform anesthesia is dangerous in esophageal work.

(2) The esophagoscope used in these cases is Mosher's ballooning esophagoscope which has many advantages as with its use we can do away with sponging and suction apparatus; it also dilates the esophagus thus aiding materially in the removal of an impacted foreign body, also giving a clearer view of the esophageal folds.

(3.) An esophagoscope carefully and gently passed does not cause any ill-effects.

(4) The danger to the patient and difficuly in removal of foreign bodies increases with the length of time present in the esophagus, hence it is of great importance that patients suspected of having foreign bodies in the esophagus should be subjected to roentgenray examination immediately, and even with a negative plate an esophagoscopy should be done if symptoms warrant it.

(5) Esophagoscopy in medical cases with esophageal symptoms is just as valuable as cystoscopy in bladder cases, and more so as

we have freer access and better exposure of the esophagus, and if local treatment or operation is necessary it can easily be done through the esophagoscope.

DISCUSSION

Gaylord C. Hall: We have all enjoyed Dr. Pirkey's paper and case reports because a branch of medical work is emphasized which, while within the domain of specialists in our line, has been relegated practically to a few nose and throat men for the reason—and I think it is a very good one—that cases are fortunately rare and consequently facility in manipulation of the esophagoscope is not acquired by all of us. If every nose and throat specialist were to attempt to do this work the number of cases seen by each would be reduced to such an extent that no one man would have sufficient experience to become dextrous enough to be the most benefit to his patient. So I think it is fortunate that esophagoscopy is restricted to a few for the reason stated. Most of this work has been of an emergency character in the removal of foreign bodies.

I think Dr. Pirkey did well in calling attention to the fact that, for the most part, an anesthetic is unnecessary in esophageal examinations. If we can control the spasm, and this is best done by atropine, if we can allay fear, and that is best done by small doses of morphine, even the local application of cocaine is unnecessary. These examinations are not painful, and if we can get the patient under proper control the esophagoscope can be introduced with very little discomfort.

The essayist also called attention to another important point, i.e., that the examination must not be unduly prolonged. It is far better to make two or three examinations of short duration, quickly and scientifically done, rather than to "mess around" in the esophagus for three quarters of an hour or longer in attempting to do something which should have been accomplished in ten minutes or less.

When a foreign body has lodged in the esophagus of course it should be removed as soon as possible. As the essayist has well said the difficulty of removal is in direct proportion to the time that the body has remained in the esophagus for this reason: that proximal to the foreign body, after it has remained in the esophagus for any length of time, an area of edema appears; and this area of edema has been responsible for the overlooking of a great many foreign bodies. It is not infrequent that the passage of the esophagoscope fails to reveal the presence of the foreign body but the withdrawal of the instrument will reveal it, because as the esophagoscope is withdrawn the area of edema is pushed upward and the foreign body is thus exposed to view where it is not visible upon introduction of the instrument.

Whenever a foreign body, a coin for instance as shown by the X-Ray is in a transverse position one may be sure it is in the esophagus. It cannot be in the antero-posterior position unless it is in the larynx. The narrowest portion of the esophagus is just behind the cricoid cartilage and that is the usual point of lodgment for foreign bodies.

There are two main classes of cases, in the consideration of diseases other than as a result of stricture, to which it may be well to call especial attention, cases in which one has a time of election in which to pass the esphagoscope. For instance, take a child who has swallowed concentrated lye, who has been suffering from hunger both for food and water, who is extensively emaciated, who probably has a considerable degree of acidosis as a result of starvation; it is highly hazardous to do any endoscopic work under such circumstances. It were far better in every respect to perform gastrostomy and feed the child to get him in a proper state of nutrition, and then attempt diagnosis by first giving a bismuth meal and using the roentgen-ray, and second by endoscopic work to locate and dilate the stricture or strictures, rather than attempt to first do any endoscopic work while the child is in an extreme condition.

The second class is that in cases where the patient has not reached the starvation point, it is highly important to have him abstain from food, particularly liquids, for four or five hours prior to doing esophagoscopy, for the simple reason that if one should be so unfortunate as to get the patient when his stomach is filled with liquid and pass the esophagoscope far enough to open the cardia, a good "spraying" may be the result.

I think a general anesthetic is rarely necessary in any case even in children, and of course the younger the children the easier they are to control. Children who are the most difficult to control are those between five and twelve years of age, but by placing a "mummy" dressing on them and giving a small dose of morphine,—I prefer a small dose relatively of morphine and a large dose relatively of atropine,—the patient can generally be controlled and any foreign body removed or any necessary examination made within a few minutes and without much discomfort.

I do not believe the external operation of opening the esophagus is justifiable in any case for the removal of a foreign body because it is possible to succeessfully remove it by the endoscopic route. I cannot conceive of a time or place where at the present day this form of examination and treatment is not available. The external method is attended by a considerable mortality and there are other considerations which cannot be disregarded. In certain cases of esophageal diverticula, however, the external operation is indicated. Mosher by the way has devised an operation for the cure of esophageal diverticula by the use of cutting forceps, slitting the wall between the diverticulum and the esophagus. I hardly think this method of procedure will meet with general acceptance. Excision of the diverticular sac by the external route seems to be a much better surgical procedure.

S. Shelton Watkins: I wish to congratulate the essayist on the excellence of his paper. It should be emphasized, I thing, that esophagoscopy can be successfully performed at any age. Jackson has done it several times in the newborn. Of course many conditions may cause esophagoscopy to be inadvisable. Aneurism is a contraindiation for the diagnosis and treatment of disease, but it is not when there is danger of perforation of the esophageal wall from a sharp pointed foreign body. The same is true of advanced disease of the heart and very high blood pressure. "Water hunger" can usually be overcome in a few hours and it should not cause more than a temporary delay.

Another point to be emphasized is that esophagoscopy is not a dangerous procedure in the hands of an experienced operator. When done for diagnosis it is practically never fatal, and the mortality in foreign body cases in large clinics is less than three per cent. It is much safer than the old practices of pushing the foreign body downward into the stomach with a bougie or probang, and blind attempts at removal with curved forceps through the mouth. Also, it is decidedly safer than external esophagotomy which has a mortality of over twenty per cent. As has been stated by Dr. Hall and many others, external esophagotomy is not indicated except in cases of esophageal diverticula.

I was glad to note that the essayist sometimes gives a general anesthetic in these cases. While it is preferable not to use any anesthetic, especially in children, one should not make this a rule for partically every case as some operators do. There are times when either is preferred. This is particularly true for the removal of foreign bodies from the esophagus. General anesthesia causes relaxation of the muscles of the esophageal wall which lessens the liability to injury of it during the operative procedure. This may easily happen with a conscious patient should he not be perfectly controlled. Also, when the patient is highly apprehensive or gags excessively it is preferable, I think, to give ether than to force an ordeal upon him. Cocaine will anesthetize the mucous membrane of the pharynx but it will not always stop gagging, nor will it obliterate the pain caused by the strain put upon the muscles of the neck. Indeed, why not give ether to nervous patients? When properly administered the additional shock is slight and it is decidedly less trying to such patients than the mental shock experienced during local anesthesia. One gets over the effect of ether in from a few hours to a day or so, but mental shock may upset one for weeks and months. The only reasonable course to follow, in my opinion, is to select the anesthesia according to the patient; but it is doubly important when a general anesthetic is given to follow Jackson's advice not to continue these examinations and treatments longer than fifteen minutes under one year of age; twenty minutes in children up to five years of age; thirty minutes in children between five and twelve; and forty-five minutes in adults, because, of course, the anesthetic is an additional strain.

Esophagoscopy for diagnosis should, I think, be encouraged in obscure cases, because there is no good reason for avoiding it, and because by it lesions of the esophagus and cardiac end of the stomach may be diagnosed early when the chances of cure are greatest.

W. Hamilton Long: In regard to the anesthetic for esophageal manipulations: I am aware that most of those who do work of this kind prefer that no anesthetic be administered. However, if an anesthetic is to be given in these cases, and I think it is necessary in a number of them, I would make a plea for the correct sort of anesthetic and for technique that will permit of constant rather than of intermittent anesthesia. Any form of anesthesia which is given to profound depth and then has to be withdrawn while the operative work proceeds until the reflexes begin to return, the operator having to wait until deep anesthesia is re-induced, is certainly unscientific and dangerous. When the proper depth of anesthesia has been secured in these cases that degree should be maintained until the operative procedure has been completed. I believe the best plan is to use some insufflation method, preferably the pharyngeal, with warm ether vapor and oxygen. This method has proven satisfactory in the comparatively few of these cases that I have anesthelized.

Classification of Brain Tumors.—Besides reporting eight cases Spiller and Frazier present a classification of brain tumors. The following cases have been selected as representing tumor types and various locations: (1) an endo-thelioma of the left occipital lobe; (2) a tuberculoma of the parietal lobe near the motor cortex; (3) an encapsulated glioma of the motor area; (4) a calcified endothelioma of the falx; (5) an unusually small endothelioma near the motor cortex; (6) a fibroma of the posterior fossa origin undetermined; (7) a glioma of the cerebella hemisphere; (8) an acoustic tumor (fibroma).

THE FORUM

FORUM.

To the Editor:

Hopkinsville, Ky.

Your attention is called to an address delivered before the graduating class and alumni of the University of Louisville, June, 1921, by an Atlanta physician. The address was published in the Journal of January, 1922, begining at page 43. Title, "The Young Man in Medicine."

The address gives much thought for meditation and study. Every word uttered before that body of accomplished graduates carried its full weight as facts. It would seem presumptious, if not egotistic, for one of their older members to kindly offer a friendly criticism, as it was a great address.

Present current events leads an intelligent mind to follow up inferences to their logical conclusions. Down in the second paragraph of the address the essayist speaking of the young M. D's qualifications used the phrase, "Darwinian fitness." With justice to the author we wrote him a private letter asking his allusion in the use of the name, "Darwinian fitness," and a private letter which is before me says in part, "Darwinian fitness" in the second paragraph is a reference to Darwin's doctrine of the survival of the fittest, or in the more recent phraseology, the survival of the fitter." The letter further fully shows our inference was correctly drawn. One objection at the least, we regret the doctor did not give America the patriotic pleasure of using the "fitness" of one of the hundreds of medical men from Yale, Harvard, up to the old University of Louisville as an "example." Charles Robert Darwin (1809-1882) was a noted English scientist, or naturalist. If he was ever "fitted" or practiced medicine we are from Missouri? He did write his "Origin of the Species," 1859, and followed with "Darwin's Descent of Man," claiming man was a lineal descendant from the ape. The "Missing Link" has been hunted for over fifty years. He, Darwin claimed, was the father of Adam. He failed to even mention the mother of poor Adam, for the great Kate Field said, "It takes two to make a deal." Prof. N. S. Shaler, of Harvard, says, "There are two or three million of species on earth." All scientists agree that no life can come from dead matter. How came the primordial germ, or protoplasm of the first male and female of these 2,000,000 pieces? All agree that there never has been any evidence of spontaneous generation. Here is Darwin's and Huxley's own confession: "Our ignorance of the laws of derivation is profound." "The laws governing inheritance are for the most part unknown." One of the definitions of species is that they will not interbreed and propagate. So hybrids are sterile. "After his kind" is the primal law of nature. So the stubborn mule blocks the highway of evolution. Darwin admits, "We cannot prove that a single species has ever changed." Nor can there be a transition from one species to another, each multiplies after "his kind." God so placed his law of immutability, or transmutability, that the gulf between man and beast has never, nor can be abridged. Like produces like in species all through organic life. Has any doctor since the origin of man seen or heard of a newborn babe from any woman, with hair over its body, apish, hairy chin to even raise the question of its lineal ancestors? Darwin copied from Genesis, first chapter, his comparative anatomy which is determined by the proportion of ascendency from lower to higher life, viz., fish, reptiles, birds, mammals, man."

In his "Origin of the Species," page 298, he denies that "Man was created from the dust of the ground," as recorded by Moses (Gen. 1:26, 27; II, v. 1, 2.)

Darwin, Huxley, Spencer, Robert G. Ingersoll, Thomas Paine and most atheists, agnostics and higher critics believe in the evolution of man from the ape. Haeckel, of Germany, was the strongest. Professor Paulsen, of Berlin, said: "The reasoning of Haeckel is a disgrace to Germany." Haeckel later admitted, "Most modern investigators of science have come to the conclusion that the old doctrine of evolution, and particularly Darwinianism, is an error and cannot be maintained." Professor Virchow, the most eminent pathologist, fought evolution for over thirty years. William E. Gladstone, the eminent English statesman, strongly opposed it. Woodrow Wilson lays many serious charges at the very doors of evolution. William Jennings Bryan says "It is the worst menace, not only to the church, but to civilization as well." Roosevelt opposed it. The doctrine is the worst enemy to the Bible, and Jesus Christ himself. This doctrine is taught in medical schools, colleges, universities, often from the pulpit by men who have not taken the time to investigate the hypothesis of evolution and follow it to its logical conclusions. In Reference Handbook of Medical Sciences on Evolution of Man, p. 737, is an article by a professor in Harvard, who quotes Darwin as highest reference. Here is his syllogism: "All living species have been developed from pre-existing species, these from others, and so on back through an infinite past; man is a living species, therefore man has evolved from another pre-existing species." With due respect I deny this syllogism in to-to.

In the first place just preceding this syllogism the writer was careful and said, "No individual can ever confirm either theory by direct personal observation of the process which the theory affirms." His premises are not facts as stated or affirmed. "All living species have been developed from pre-existing species ("after its kind"). The genera of all these living species must have come from a first cause, or primordial germ, these came into existence by chance, or an all-wise Creative Act. Orderly succession suggests cause and effect; in turn, this implies and demands an intelligent and infinite first cause. Evolution is not casual, thereby ruling out a belief in a first cause.

Nothing in the universe more clearly points to a beginning than the solar system; and great scientists like Lord Kelvin and Sir Oliver Lodge, are quite definite in their personal conviction "that only by means of a first cause can we account for things as they are." Scientists usually go back to the nebular hypothesis or more modern theory of the origin of matter through electrons.

If that was the beginning of matter, evidently the beginning of time also had a beginning. If so the phrase, "Back through infinite past," in syllogism would hardly be a correlative term, with beginning of matter and time.

The protoplasm or primordial first germs must have come by a Divine and supernatural power to account for things as they are; chance cannot explain.

Second-man is a living species ("after his kind") and originated from the primordial germ of first cause as recorded by Moses in Genesis 1:26, 27; 11:7, v. 1, 2. Read carefully. Christ referred to Creation in Math. 19:4: "And He answered and said unto them, have ye not read that He which made them at the beginning made them male and female?" If man had descended from the ape or brute naturally he would have the same blood relationship. You cannot find a single sentence in the Bible—not a word or phrase or a syllable—that in the most remote way suggests support of the Darwinian hypothesis. First Corinthians 15:39 would seem to directly contradict Darwin's hypothesis: "All flesh is not the same flesh: but there is one kind of flesh of men, another flesh of beasts, another of fishes, and another of birds." It is strange that an hypothesis can last fifty years without a fact to support it. Darwinianism is condemned out of its own mouth. If this is propaganda to misguide the men who are dealing with human lives, and spiritual life, as God said, "Let there be light." Truth will out.

Our medical directory shows that the author of the above address graduated in medicine at Atlanta, and not from the University of Louisville; presumption is that all the brilliant alumni of the University fell in the World War. As to the address, we would fain emulate his scholarship and feel that the use of the phrase "Darwinian fitness" was not used as a propaganda indorsing Darwin's hypothesis of evolution of man, but a meaning that the graduate pass his examination before the State Boards. In view of so many books being written on evolution, basing hypothesis on Darwin's "Origin of the Species," and his "Origin of Man," thoughtful men do not fail to recall the trouble caused by his and Spencer's views that were advocated over the country by Robert G. Ingersoll and others. The church has suffered by such doctrine, the memory of which still abides with many. In addition to all that was said in the address we venture to add that had we made that address we should not have failed to advise those young M. D.'s to take their diplomas home, marry the first good neighbor girl they could get, join some church in the community, build them a little cozy home, be a student, let Darwinism, zoology and politics alone and "let nature take its course."

Nietzsche took this hypothesis, brought man down to the brute basis, taught that might makes right, and laid the foundation for the greatest war that man ever knew. He got it from Darwin. He says Darwin was one of the three great men of his century. He praises Napoleon as the greatest because he made war "respectable" again. A Paris editor wrote twenty-one years ago: "The spirit of peace has fled the earth because evolution has taken possession of it." We lay no claim to being scientific, nor a theologian, as evidenced herewith, so if published we hope this may cause some undecided one to read a little more and hesitate before accepting an unproven doctrine. Propaganda comes in the movies and through divers ways, so one grows suspicious of even the mention of one's name. We are always suspicious of any one who rejects the Bible as Darwin, so the essayist next time will use greater men's names as an example. We are sure he had good motives at heart.

Very truly,

M. W. Rozzell.

FORUM.

To the Editor:

Permit me to inform you that my book, "Massage and Exercises Combined, etc.," has been reduced in price to $2.50. It was reviewed in your Journal of March, 1921. Please correct price on the copy you have and, if possible, in your Journal.

Will it interest the Kentucky State Medical Association to learn that I have made a film of all the exercises in the book?

Sincerely yours,
ALBRECHT JENSEN,
Author and Publisher of the Book.

IN MEMORIAM

Nathaniel L. Rogers

As each fleeting year passes our membership is recruited by a number of splendid gentlemen becoming associated with us. But so sad to record the unsparing hand of death depletes our numbers during every interval between our annual meetings.

Dr. Nathaniel L. Rogers was born in Trigg County, Kentucky, August 1, 1863. The family removed to Wickliffe, Ballard County, Kentucky, in 1881. He acquired his literary education in the schools of Trigg and Ballard counties, and at the Farmington High School and Milburn Academy.

About 1887 he began reading medicine under the preceptorship of his brother, Dr. William J. Rogers. He matriculated at the Louisville Hospital College of Medicine in the autumn of 1887. He took his degree in medicine from this school in June 17, 1890, and located at his home town, Wickliffe, where he continued in the active practice of medicine until the encroachment of the disease which caused his death, compelled him to retire about eight months prior to his demise which occurred December 10, 1921.

Our brother was a communicant of the Methodist Church from 1893 until the close of his life. He was made a member of Wickliffe Masonic Lodge No. 625 in 1892, was a zealous Mason and served as master of his lodge. Our colleague joined the Southwestern Kentucky Medical Asociation at our annual meeting May 16, 1893; also held membership in the Ballard County Medical Society, which he served efficiently as President and Secretary. The Kentucky State Medical Association, the International Association of Railway Surgeons, Southern Association of Railway Surgeons. For about twenty-seven years he was local surgeon of the I. C. R. R. and of the M. & O. R. R. about thirty years.

He was the first surgeon ever appointed by this company and served until his health compelled him to resign. For a long period of time he was chairman of the Ballard County Board of Health, and was his county's able health officer for perhaps a fourth of a century.

Dr. Rogers was recognized by our profession and the laity as a physician of superior attainments, always high toned, thoroughly ethical, in brief his deportment professionally was above reproach. Personally he was a fine, courteous gentleman endowed with fine social qualities.

The inevitable outcome of such an exemplary life was the esteem, yea the love of his professional associates, and his large and appreciative clientele.

After such a strenuous life, doing a large practice for thirty-one years, we feel sure that he is now enjoying a fully merited rest. In 1892 he was married to Miss Cattie Thomas, a lady of culture and refinement, in every way worthy of her noble husband. He was buried with the honors of Masonry. The great congregation and the many beautiful floral wreathes, demonstrated the intense love of the community of which he had been a citizen for forty years.

> "Green be the turf above thee,
> Friend of my better days,
> None knew but to love thee,
> None named but to praise."

ROBERT T. HOCKER, Ch'm.,
W. W. RICHMOND,
E. A. STEVENS,
Committee.

BOOK REVIEW

The Healthy Child From Two to Seven.—A Handbook for Parents, Nurses and Workers for Child Welfare containing the fundamental principles of nutrition and physical care, including sections on child nature, training and education, and safeguarding the nervous system during the pre-school years. By Francis Hamilton MacCarthy, M.D., assistant professor of Diseases of Children, Boston University. The MacMillan Company, Publishers, New York. Price, $1.50.

The volume will be found very useful to those who are carrying on the crusade to build up a stronger race of men and women, it deals with the care and nurture of children during the foundation years before school life begins.

Influenza—Reports indicate that there is a somewhat increased incidence of influenza, particularly in New York. Special mention of increased incidence is also made in correspondence from London and Berlin. The history of influenza indicates that recrudescence is to be expected from time to time in various localities following the initial pandemic.

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GENERAL SURGERY	
F. T. Fort	*Louisville*
C. A. Vance	*Lexington*
L. Wallace Frank	*Louisville*
PEDIATRICS	
P. F. Barbour	*Louisville*
OBSTETRICS	
Edward Speidel	*Louisville*
L. O. Redmon	*Lexington*
EYE	
Adolph O. Pfingst	*Louisville*
EAR, NOSE AND THROAT	
C. T. Wolfe	*Louisville*
S. S. Watkins	*Louisville*
PROCTOLOGY	
G. S. Hanes	*Louisville*
Bernard Asman	*Louisville*
PRACTICE OF MEDICINE	
P. D. Gillim	*Owensboro*
R. H. Cowley,	*Berea*
ANESTHETICS	
W. H. Long	*Louisville*
DENTAL PROPHYLAXIS	
George H. Heyman	*Louisville*

ANNUAL MEETING, PADUCAH, 1922.

COUNTY SOCIETY REPORTS

Ballard—The regular meeting of the Ballard County Medical Society was held at Fisk Lake, July 11.

W. F. Grinstead read a very interesting paper on State Medicinia.

W. W. Durham of Hopkinsville read a paper on Mental Cripples which was discussed by all the members present. After completion of the program a dinner composed of fish, barbecue and various pastries, ice cream and cake was served by our good wives and was thoroughly enjoyed by everyone.

The society is very active holding meetings on the second Wednesday in each month.

G. L. THOMPSON, Secretary.

Christian—The Christian County Medical Society met in regular session, Tuesday, July 18, at the Hotel Latham, Hopkinsville, where a special dinner had been prepared and served in a private dining room.

Immediately after this dinner President Bell called the meeting to order and the following members were present. Drs. Rice, Gaither, Lacy, Sargent, Dade, Caudle, Woodard, Durham, P. E. Haynes, W. A. Haynes, Ezell, Morris, Barnes, Reynolds, Croft, Bell, Jackson, Hill, Stiles, Harned, Perkins, Barker and Sandbach, with J. Paul Keith, Louisville, as our visitor.

A letter from Dr. McChord, Chairman of the Council, asking for a memorial to the memory of Dr. J. N. McCormack for our November Journal, was read by the Secretary and a committee of Drs. Woodard, Durham and Baker was appointed to draft said memorial.

J. L. Barker made a further report on the case reported at our last meeting stating that upon an operation the correct diagnosis proved to be Carcinoma of the Pylorus.

A. Sergent reported a case of Carbolic Acid Poison.

J. P. Keith addressed the society on "Deep X-Ray Therapy." giving reports on several cases.

J. W. Harned read an excellent paper on "Vitamines." Both Dr. Keith's address and Dr. Harned's paper were enjoyed by all and were freely discussed by Drs. Caudle, Stites, Gaither, Sargent, Woodard, Durham and Morris.

W. W. Durham, Suprintendent of Western State Hospital extended an invitation to the Society to meet with him in September. The invitation was unanimously accepted.

The Secretary announced that Drs. Woodard, Baker and P. E. Haynes would furnish the program for August.

AUSTIN BELL, President.
W. S. SANDBACH, Secretary.

Christian—The Christian County Medical Society met in regular session Tuesday, August 15, at the Hotel Latham.

After enjoying a delightful dinner the meeting was called to order by Dr. Bell and the following members were present, Drs. Dade, Ezell, Candle, Reynolds, Woodard, Kingens, Stone, Lacy, Harned, Bell, Watts, Morris, Baker and Sandbach.

R. L. Woodard reported, clinically, a clear case of Intestinal Obstruction though upon operation a case of acute appendicitis.

Randolph Dade, reported a case of tubercular Meningitis, and two cases of Epilepsy, in which he had gotten good results from the use of Aluminum.

R. L. Woodward gave the society a full account of Dr. Rice's condition, who is now in the Jennie Stuart Hospital.

W. S. Sandbach was appointed by the Chair as a committee of one to send flowers to Dr. Rice in the name of the society.

J. L. Barker addressed the society on "The Stomach." This was a very timely address dealing not only with the more serious conditions of the stomach but the smaller digestive disturbances also. His chief point was, however, diagnosis. Drs. Dade, Reynolds, Ezell, Candle, Woodard and Bell discussed the address.

AUSTIN BELL, President.
W. S. SANDBACH, Secretary.

Fleming—At the regular meeting of the Fleming County Medical Society, July 12, 1922, there were present Drs. W. F. Jessie, J. B. O'Bannon, A. M. Wallingford, Jr., C. R. and C. L. Garr, A. S. Robertson and Chas. W. Austin, with A. M. Wallingford presiding. The subject of Rheumatism was generally discussed and resolutions relative to the death of Dr. Joseph N. McCormack unanimously adopted. These resolutions will pass through the general council for the November Journal.

CHAS. W. WATKIN, Secretary.

Harrison—The Harrison County Medical Society held its regular monthly meeting at Harrison Memorial Hospital, August 7, 1922, as guest of Miss Gatis, superintendent, in honor of J. O. Jenkins of Newport.

After enjoying a splendid six o'clock dinner, the meeting was called to order by the President, J. E. Wells. Members present: Drs. Martin, Carr, N. W. Moore, Rees, Chamberlain, Blount, Morgan, Wells, McDowell, W. B. Moore, Swinford, McIliam and J. O. Jenkins.

Several interesting case reports were made by Drs. Carr, Rees, Martin and Jenkins.

Resolutions expressing regrets that Miss Gates had offered her resignation as Superintendent of Harrison Memorial Hospital were passed by a rising vote.

W. B. Moore read a paper on Central of Communicable Diseases. J. D. Jenkins rea da paper on Glenard's Disease. These papers were discussed by Drs. Rees, Carr, McDowell, Martin, McIliam, Wells and N. W. Moore.

Adjournment.

W. B. MOORE, Secretary.

Henry—The Henry County Medical Society met in an all-day session in D. D. Smith's woods near New Castle, July 24th, at 11 a. m. No business was taken up before noon and at that time a chicken and watermelon dinner was served in the park. The following members were present: O. B. Humston, A. P. Dowden, M. Bell, E. E. Bickers, O. P. Goodwin, W. F. Asbury, J. C. Hartman, C. R. Johnson, C. H. Wilson and Owen Carroll.

The following visiting doctors were present: J. D. Trawick, Virgil Simpson, Chas. Farmer, Wm. Young, D. Y. Keith, Powell Boulware, W. E. Fallis, E. S. Allen, J. D. Allen, C. T. Wolfe, A. O. Pfingst, Robert Pirtle, John Heim, C. W. Hibbett, Goldsboro, Jr., Owsley Grant, P. E. Blackerby, Jethra Hancock, Miss Maud Hinton, Henry County Nurse.

Miss Hinton explained to the physicians her duties and her desires in her work as County Health nurse.

Virgil Simpson talked on Protein Hypersensativeness, and Dr. P. H. Blackerby gave a general talk on public health work.

E. S. Allen read a paper on "The Relaxed or Torn Perineum. This paper was discussed by Boulware, Fallis and Bickers. A copy of the paper is enclosed herewith for publication in the Journal.

We wish to extend, publicly, our thanks to Mrs. D. D. Smith for the preparation of the dinner which was served in picnic style in the park. One of the principal attractions of the meeting was the exhibition of baseball playing given by D. Y. Keith, A. O. Pfingst and E. S. Allen and others (and they really think they can play.) Meeting adjourned to meet the last Monday in August.

OWEN CARROLL, Secretary.

Lyon—At a meeting of the Lyon County Medical Society the following resolutions were unanimously adopted:

Whereas, it has pleased Almighty God to summons to eternity John H. Hussey of Eddyville, Therefore be it resolved:

First, That Lyon county and the city of Eddyivlle, has lost a citizen whose declaration of principals was always clear, firm and well defined; and whose influence was always decisively felt on the side of law and morality; that the medical profession has lost a member who was always courteous and dignified in his relations with the profession; that his patients have lost a physician who was always careful, patient, progressive and persistent in his fight against disease; that the State Board of Health has lost a referee who has been a mirror reflecting the needs of his county to the parent society for a great many years; that the Lyon County Board of Health has lost a president who presided over its deliberations with dignity and fairness. That the Lyon County Medical Society has lost a charter member whom the society chose to honor with its presidency on the last election before his death; that his esteemed wife has lost a clean, constant and faithful husband.

Resolved, that a copy of these resolutions be sent to the Kentucky Medical Journal, to the Lyon County Times and to Mrs. J. H. Hussey.

D. J. TRAVIS,
C. H. LINN,
Committee on Resolutions.

Lincoln—The Lincoln County Medical Society met in the Circuit Court Room, Stanford, July 11, 1922, with a full attendance. We had as our guest Louis Frank, President-elect of the State Association and R. J. Estill, Councilor of the Tenth District. No especial subjects were discussed. The meeting was more a get-together affair to stimulate interest in the society, and a more congenial feeling amongst the members. The addresses of Drs. Frank and Estill were along that line showing the importance of regular attendance at meetings—the benefits the individual members would derive—the importance of a united profession in the county—and how we would be best fitted to serve the public to theirs and our best interest. Both Dr. Frank and Dr. Estill were cordially received, and made a very lasting impression on the members. Dr. Frank is known to most of them—and he delivered his address in his usual and customary affable manner.

Dr. Estill was a stranger to all of us—he however. made a most favorable impression on the entire membership and every one expressed a desire of hope that Lincoln County could be put in his district. Personally I think if the transfer could be made, it would be a material help to the building up of our society and the means of the members taking a greater interest in the State society. The Councilor of this district has not visited our society for eight years. The interval of his coming is too long to be of any benefit to our society. We all hope to have Dr. Estill with us again soon. After the morning session the meeting adjourned to the Hotel Accy, where a tempting banquet was served. The meeting continued there, all members making short talks

J. G. Carpenter read a memorial on the life of Dr. J. N. McCormack and the life of Joseph R. Graham of Savannah, Ga., who was a former Kentucky doctor and buried at Crab Orchard. The society passed resolutions adopting the memorial as read, and directed that a copy of same be spread on the records and a copy of same sent to the Secretary of the State Medical Society. The members present were: J. G. Carpenter, W. B. O'Bannon, J. T. Morris, D. B. Southard, E. J. Brown, Lewis J. Jones, Stanford, J. A. Harmon, O. W. Boatman, Crab Orchard, Alberta Carpenter, W. J. Childress, Hustonville; C. M. Thompson and W. D. Laswell, Kingsmountain; M. Lee Pipes, Moreland; J. B. Smith, McKinney. Dr. Frank and Dr. Estill being anxious to start on their return to Louisville and Lexington before night, the meeting adjourned sine-die, after giving a rising vote of thanks for their visiting us.

LEWIS J. JONES, Secretary.

Nelson—The Nelson County Medical Society met at 10 a. m., August 8, 1922, at the office of the president, Dr. S. A. Cox. The following physicians were in attendance:

James W. Bruce, Louisville; Mischa Casper, Louisville; P. Blackberby, Louisville; L. Wallace Frank, Louisville; G. H. Heyman, D.D.S., Louisville; C. Z. Aud, Louisville; Guy Aud, Louisville; Frank T. Fort, Louisville; W. J. Shacklett, Rineyville; E. D. Mudd, New Haven; J. I. Greenwell, New Haven; W. W. Ray, Bloomfield; J. J. Wakefield, Bloomfield; S. B. Crume, Bloomfield; W. T. Barnett, Springfield; J. B. Overall, Springfield; C. W. Rogers, Rineyville; B. E. Gore, Bardstown; S. A. Cox, Bardstown; W. E. Crume, Bardstown; R. H. Greenwell, Bardstown.

This being our Councilor meeting the first address was made by Dr. C. Z. Aud, Councilor, followed by election of officers as follows:

S. A. Cox, president; J. J. Wakefield, vice-president; R. H. Greenwell, secretary; W. E. Crume, delegate; S. B. Crume, alternate; J. I. Greenwell, censor.

After which was the following program:

Councilor Greetings—C. Z. Aud, Cecilia.

Toxic Goiter—L. W. Frank, Louisville.

Some Phases of Obstertrics—B. Crume, Bloomfield.

Pyorrhea and its Prevention—G. H. Heyman, Louisville.

Adjournment for dinner.

The program will be resumed promptly at 1:30 o'clock.

Surgery of The Gall Bladder—Guy Aud, Louisville.

Address—J. I. Greenwell, New Haven.

Medical Problems—A. T. McCormack, Louisville.

Summer Diarrhea—J. W. Bruce, Louisville.

After all papers were freely discussed and dinner was served at the Old Kentucky Hotel to members and visitors as guests of the Nelson County Medical Society.

This is the best meeting we have had for many years and was a source of much good.

R. H. GRUNWELL, Secretary.

Oldham—The Oldham County Medical Society met in the city hall and was called to order by the president, H. B. Blade.

This was a councilors meeting, our councilor, C. Z. Aud was present. Other visitors were Guy Aud and L. H. South. Members present were: H. B. Blades, T. G. Cornell, E. D. Barnett, M. Casper, S. J. Smock and R. B. Casady. Papers were read by Guy Aud on Gall Bladder Diseases and discussed by the society. Dr. Casper made a talk on Cancer. L. H. South gave a report of the work done by the State Board to keep the profession clear of Quacks.

S. J. SMOCK, Secretary.

Shelby—The Shelby County Medical Society met in regular session in the County court room of the Shelby County Courthouse on Thursday, May 19, 1922, at 2 p. m., with a great many visitors present, and, nearly all the members.

The active members present were as follows: T. E. Bland, Graham Lawrence, T. J. Murray, C. C. Risk, W. P. Forman, Frank M. Beard, S. L. Beard, W. H. Nash, A. M. Shupert, A. C. Weakley, E. M. Smith, Chas. F. Dale, S. H. Kelsay and V. R. Jones.

Non active members present were: W. R. Ray, J. P. Lapsley, F. L. Lapsley, E. J. Eversole.

Visitors present were: Lillian H. South, Councilor C. Z. Aud, Guy Aud, Wallace Frank, E. S. Allen, Morris Flexner, James Bruce, all of Louisville.

The meeting was opened at 2 p.m., by the president, A. C. Weakley. On account of a lengthy program the reading of the minutes of the previous meetings were dispensed with; all business matters were disposed of.

The Society being honored by the presence of C. Z. Aud of Louisville, who is the Councilor for Shelby County.

A. C. Wakeley our president asked him to make the opening address of the afternoon program, which he did in a masterly manner.

He made a stirring appeal for the non-members to become officiated with their county society and of the importance of being organized, the great benefit that would result to all members. He asked the members to get together in harmony and peace. If a member becomes guilty of a wrong or an unprofessional act, that is not worthy. Go to him face to face and tell him of it. You will be doing him a favor, get him straightened out so that he may in the future become a credit to the profession of which he is a member.

He advised the members of the society to have a regular program, and attend every meeting and for all to do their duty. He made a plea for them to keep up the organization. He also spoke of the importance of the vital statistics law urging the doctors to report all births and deaths and all communicable diseases as required by the law, and of the inestimable value of doing such.

He spoke of the great loss to our association and society in the death of that great man, Dr. J. N. McCormack, who has done for and meant so much to all of us. He urged the members to stand by his son, Dr. A. T. McCormack, who is trying to carry on the noble work that has been started by his father. He closed with an urgent request for the society to call upon him time they needed his service. He would be glad to meet with them and to help them.

A. C. Weakley then appointed S. L. Beard, Graham Lawrence, T. J. McMurray as a committee to prepare for adoption by the society, a set of resolutons on the death of Dr. J. N. McCormack.

He also appointed T. E. Bland, W. H. Nash and W. P. Forman as a committee on resolutions pledging the support and encouragement of the society to A. T. McCormack in his effort to carry on the work that has been started by his father.

The next on the program was Dr. Lillian H. South of Louisville. She spoke on the importance of the vital statistics law. She asked the members present to take a renewed interest in their county society and to be a regular attendant of the meetings. She said that there was a very serious shortage of physicians that affected the rural counties all over the state, there was not really a shortage of physicians as far as numbers were concerned, but, they really were in the larger towns and cities perhaps in an over-crowded condition, and the results was a shortage in the rural communities—creating a serious menace to the inhabitants thereof, that leaves no unsolved problems to deal with. These communities are demanding and appealing for help; they have to have help and if they can not receive it from the ethical medical profession as a last resort will turn for help with outstretched hands to some one of the different cults of which these communities are beginning to become infested with.

She spoke of the various cults that want to enter the state to practice without any restriction.

She spoke of them planning a campaign to spend an unlimited amount of money in the interest of their propaganda in Kentucky during the next two years. She said that the Kentucky State Medical Association has more paid up members now than it has had for the past five years. There has been 2,000 paid up members to date. She said the associations now has the largest sized Journal that it has ever published.

The fault of the doctors today is too much referring their patients to the specialists. There is a great many cases he can handle himself. She said there were times when a specialist was needed. She then spoke of the State Board of Health laboratories of the training of the members o fits staff for their fitness fo rtheir positions; of how the rural practices and others may have the different tests made at this place—The Typhoid, all diseases of respiratory tract—Malaria pus, gonococcus, intestinal parasites; if a physician is unable to make a diagnosis he should have a Wassermann done all of which is done at these laboratories free. She then spoke of the different vaccine that were prepared and that could be secured at this place, Typhoid, Pertussis, U. S. A. formula, etc., the former of which 4,000 bottles were made last year, and this year they were going to make 6,000 bottles. She explained that the laboratory was always open day and night—they had an all night messenger service Anti-toxine can be mailed all hours of the night. She closed her talk by saying that the laboratory wanted plenty of work to do. She was then asked by Dr. Weakley about the examination ot water and where container could be procured. She replied that the containers were procured at the laboratories of the State Board at Lexington

Guy Aud of Louisville was the next in order and made a talk on "Plastic Surgery of the Nose." He spoke of the transplantation of the Cartilage from the ribs to correct nasal deformities much better than the old method of using bone.

He said that all injuries to the nose should be cured before any surgery was attempted, Syphilis should be treated and all dead bone should be removed.

He illustrated his talk by passing around some X-Ray pictures and drawings to the members present.

James Bruce of Louisville was next on the program with a paper entitled "Summer Diarrheoa". He divided for practical purposes thes conditions into two parts. (1) Those caused by infection of the intestinal contents; (2) Those caused by infection of the intestinal wall. Infections by contents may be gained by the con taminated food, milk, fruits, etc. Then good food not handled properly by digestion juices may cause this condition. These conditions have no blood in stools. A child may go from apparently good health to death in twenty-four hours.

There are two points to be considered in the treatment of this condition (1) To check diarrhoea (2) To prevent water loss—this was a very interesting paper.

On discussion E. B. Smith asked about a water logged baby.

Morris Flexner, spoke of his using the Acidophilus Bacilli in the treatment of patients with good results at the Children's Hospital.

Lillian South told of being at the Battle Creek Sanitorium in Michigan and learned of the patients there drinking this Acidophilus Bacillus in boiled milk and calling it the "Elixir of Life." She said that on testing it found it much better than Kentucky Bourbon. (Laughter.)

The discussion was closed by Dr. Bruce who said that the Bacilli that was commercially on the market today was not reliable—He said it was in the stools of all infants. That the Bul goni Bacilli would not live in the intestinal tract. He said that the Acidophilus Bacilli is principally of lachil Acine formalation.

Discussion reopened by W. R. Ray asking Dr. Bruce if the morphine and atrophine treatment of years ago is out of date.

Dr. Bruce replied that if the bowels are locked up before they are thoroughly cleansed we would be doing great harm, but if the stools were of good color, and yet the diarrhea continued to where the patient was being exhousted, then paregoric would be beneficial.

Wallace Frank, Louisville said that Goitre was not as frequent as it used to be, that the cause was unknown and six females to one male were affected. A possible primary cause was a deficiency of iodine in the water. He said one type of Goitre could be dismissed from senior consideration. He spoke of the adolescence type that usually appeared before puberty, that the remedy was not iodine or surgery, but the X-ray treatment.

He said the colloid was the most common type seen and found more frequently in the rural districts among the negroes. Any type of Goitre may be substernal.

Discussion was opened by Dr. Guy Aud, who said that the indication for an operation was as defined in exophthalmic goitre as the symptoms were in a case of appendicitis—his treatment depended upon the indications of each individual case. High pulse rate case, should be ligated and wait for the proper indications to operate and then a thyroidectomy should be done.

E. S. Allen said that the X-Ray treatment would at times cause adhesions.

Morris Flexner spoke of the intestinal cases of young married women that have been vomiting ever since adolescence, later they would become very emotional, crying, etc. He does not agree that all cases are surgical, the hypo-thyroid cases are not surgical and can be cured by the X-ray. The exophthalmic cases are surgical.

Wallace Frank (closing) He said ligation was about the same as the X-Ray treatment and one fault of ligation was that the patient some times passed on out of the hands of the surgeons. They do not come back, they either think they are cured or go to other surgeons.

A. C. Weakley announced that he would like to present a case present before the society. Mr. G. had a brother who previously had a sarcoma of the eye and was operated on for same by Dr. Adolph Pfingst of Louisville. A few months later Mr. G. who was present had a growth to come on the jaw, a lump. Dr. Weakley finally aspirated and sent the specimen obtained to Dr. E. S Allen, Louisivlle, for diagnosis.

E. S. Allen then took up the narrative of this case and said the patient had a history of Malignancy—so the probable diagnosis would be a malignant tumor was at present trying to make a culture. Treatment at present was an injection of a mixed solution of iodine and potassium iodine internally, the patient being present was presented to the members for examination. The meeting was adjourned after which an informal reception was held and light refreshments and cigars were served.

V. R. JONES, Secretary.

Wayne—The meeting was called to order at 8 p. m. in Dr. Young's office.

Miss Hattie Denny, Superintendent of County Schools; Mrs. W. B. Heck, Chairman of the local Red Cross Chapter; Dr. Tuttle, representing the local dental profession, and Miss M. C. Wentland, Public Health Nurse of Wayne County, were invited to meet with the medical society at this time.

Ways and means of carrying on an effective public health program in the county were discussed. It was generally agreed that education along lines of health, hygiene and sanitation would be found the most potent means of overcoming the evils resulting from the prevailing dense ignorance and superstition. The need for perfect co-operation between the medical profession, the dental profession, the schools, the Red Cross, the court and all other agencies and individuals interested in the welfare of Wayne County would be absolutely necessary if any tangible results were to be obtained.

The doctors agreed to divide between them the medical school inspection of the children in the graded school of Monticello, and also offered their services for examination of babies during the baby contest at the County Fair.

Standing orders for emergency bedside care were read and approved.

J. F. Young was chosen speaker on the program with Miss Marion Williamson during her expected visit here in Monticello next month.

It was decided that the medical profession would give its time and services in caring for those unable to pay yet needing medical treatment, and that the Red Cross ask the fiscal court to appropriate funds to defray the expense of necessary hospitalization.

A motion was made that the medical profession as a body pledge its support of and co-operation with the Red Cross and the public health nurse in their efforts to establish a public health program in Wayne County.

J. F. YOUNG, Secretary.

Spencer—The Spencer County Medical Society met at the court house at Taylorsville, at 1:30 p. m. and transacted the following business:

Meeting was called to order by Dr. R. Y. Shepherd, who in the absence of Dr. B. F. Shields acted as chairman. A motion was made and carried to draft resolutions of sympathy in memory of Dr. W. D. Seely, one copy to be sent to his family, one copy published in the State Medical Journal, and one copy published in Spencer Magnet. Committee composed of Drs. B. F. Shields and J. F. Furnish.

Officers for the ensuing year were elected as follows:

J. F. Furnish, President; B. F. Shields, Vice President; R. Y. Shepherd, Secretary; E. L. Brannaman, Delegate; B. F. Shields, Alternate; Board of Censors, O. L. Conrad, 3 years; E. C. Wood, 2 years, T. J. Snider, 1 year.

Next meeting to be held August 7, 1922, at 2 p. m. at the office of R. Y. Shepherd at which time a regular schedule for future meetings will be arranged. There being no further business, the meeting was adjourned.

Just before the business meeting the Spencer County Medical Society was host to a number of Louisville physicians, who enjoyed an excellent dinner at Mrs. Carrie Walken's. Among those present from Louisville were the following:

A. T. McCormack, Secretary State Board of Health; C. G. Hoffman, Councilor Fifth District; C. W. Dowden and Enfield, C. T. Wolf, Wallace Frank, F. T. Fort, E. S. Allen, J. K. Allen, Barnett Owen, Jas. T. Bruce, S. S. Watkins, Lillian H. South, State Bacteriologist.

After dinner we proceeded to the courthouse where a number of excellent papers were read and freely discussed. At 7:30 p. m. there was a public health meeting, open to the public.

R. Y. SHEPHERD, Secretary.

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EDITORIAL

THE PADUCAH MEETING.

The medical profession of Kentucky found itself again at Paducah. Five hundred and forty-three active, practicing physicians, representing not only almost every county in Kentucky but almost every section of every county, met together and discussed the advances in scientific medicine that they might take them back home again and there use them in the service of suffering humanity. The interest in the scientific program never fagged. The discussions of the papers showed unusual study and interest. In the seventy-two years of its honorable history, the physicians of Kentucky never showed to better advantage that they are united in the service of their people.

In the proceedings of the House of Delegates will be found the old spirit of the days before the War which many of our members had feared would never return. Since 1916 committees have been listless and many chairmen have failed to be present and respond with their reports. We have had a great deal of talk and very little action. At this meeting the whole picture changed. Practically every committee chairman was on his toes with a terse, well considered, clear report that went right to the heart of the matter referred to them and set out a clear cogent plan of action. Members of the profession all over the State will be heartened as they read the proceedings of the House of Delegates and realize how thoughtfully and carefully plans are being laid for their professional and commercial welfare. When the plans forecast at this meeting have been cystallized into action it will mean the saving of thousands upon thousands of dollars for the members of the profession of the State so that they may each be better able to make and save money. Too frequently we fail to realize the importance to the physician of such financial independence as will enable him to work care-free in this respect. His very vocation demands so much of him that it ought not be necessary for him to waste his days and nights worrying over what is going to become of him in his old age after his greater activities cease.

There was the greatest interest manifested on all sides in the subject of medical education. The tendency toward specialization and too technical scientific education was uniformly recognized and deplored. The often repeated determination of the State Board of Health that it would never consent to any plan for lowering the standard of medical education was uniformly upheld, but, at the same time, it was realized that we have too frequently confused our standards and our curricula and the standard should not be lowered with the curriculum constantly to be improved by removing things that it is no longer necessary to teach and by including more and more of the clinical medicine which it is essential that every physician understand.

Unanimous approval of the enforcement of the section of the medical law requiring a period of service as a general practitioner before any physician should be permitted to announce to the public the limitation of his practice to a specialty was given by the House of Delegates.

The sections on Diseases of the Eye, Ear, Nose and Throat, Pediatrics and Surgery have already been organized and their examiners have been nominated.

The State Board of Health was requested not to accept for reciprocity any physician who limits his practice to a specialty from any other State who has not had at least five years of general practice with such post-graduate instruction as might be deemed necessary for his proper equipment to practice his specialty.

No member of the Association can afford to miss reading a single word of the proceedings. The scientific articles and the discussions will bring up to date the very latest information in regard to many of the most difficult practical problems of the profession. The proceedings of the House of Delegates involve not only the use of your moneys but, also, to a considerable degree your vital interest. Nothing can be accomplished by the officers, whom you have honored, without a full realization of every member of their responsibility for what is to be accomplished. The number of standing committees was considerably increased and they were given definite and large opportunities for service. Members of the profession throughout the State will be called upon for more work for the benefit of the whole organization and our people than they have ever been before and we look forward with perfect confidence to a year of happy, successful labor for the betterment of the physical condition for the people of our Commonwealth.

PADUCAH.

The Kentucky State Medical Association long ago learned to love Paducah and Paducahans. The conquest of our hearts was completed during the October meeting, and unobstrusive thoughtfulness that is the most highly organized form of hospitality, was universal. Every courtesy was extended to the members in attendance and to the ladies who accompanied them. The barbecue at the Country Club came up to the high standard set by the poet laureate of Kentucky's social affairs—that distinguished Kentuckian, Irvin Cobb. The annual dance given by the ladies of Paducah at the Country Club, graced by the presence of Governor and Mrs. Morrow as special guests of honor, was a perfect kaleidoscope of beauty and of wit.

The physician visitors to Paducah enjoyed this splendid city and the fertile country which surrounds it. They felt like congratulating the citizens on the unsurpassed purity of its water supply. They were glad to see that much of the town had already been provided with sanitary sewers and that the sewage system is rapidly being completed for the rest of it. They were especially interested in the splendid achievements of the Health and Welfare League and its splendid, but too small, corps of public health nurses. They congratulate the City officers and City upon the development of a social disease clinic that has accomplished more in the same length of time than almost any other similar activity developed in this country and the hope was formally expressed that the success of this clinic in the cure and prevention of the ravages of amongst the most horrible of diseases would be such an object lesson to the citizens of McCracken County that they would develop an all-time health department that would still further reduce the ravages of sickness and disease amongst its people. They noted the splendid factories, the remarkable retail stores, beautiful homes and felt that the progressive citizens who were doing all these things would see to it that such a health organization was established and maintained as would reduce the too high prevalence of diseases that only thrive amongst the ignorant. The visiting physicians especially congratulated their fellow citizens of Paducah on the leadership shown by their newspapers. Not even in Louisville have the reports of the meetings been fuller nor more sympathetic nor comprehending. They were delighted when they found that for months these papers had been busily developing a community consciousness of the community's health needs and, on adjourning, while thanking the hospitable physicians and citizens of the metropolis of members of the Baptist Church and the Elks' the Purchase, and especially the officers and and Country Clubs, they expressed the confident hope that before long Paducah would have developed the best sanitary conditions that are to be found in any city of its size, both within its limits and outside of them in a county which supports it.

Influence of Thyroid Secretion on Myocardium.—In a recent study of hearts from cases of hyperthyroidism in which death was caused by myocardial exhaustion, Goodpasture found acute necrosis of cardiac muscle, in one instance so diffuse as to involve a large part of the left ventricular wall. The character of necrosis was that usually associated with extreme intoxication by acute infections such as diphtheria or scarlet fever and more commonly occuring in youth. There was no indication of an infection of sufficient virulence to be alone responsible for the necrosis. Hence, a study was undertaken to determine, first, what demonstrable effect feeding dessicated thyroid would produce in the myocardium; second, whether the effect of these substances would cause the heart to be more readily injured by toxic agents, notably chloroform. Animals under such treatment showed charasteristic clinical symptoms with definite, although reatively slight, myocardial lesions. Silarly treated animals which had in addition, been subjected to chloroform anesthesia showed more striking, widespread myocardial necrosis. These experiments indicate that chloroform as an anesthetic in cases of hypehthyroidism is apt to be exceptionally detrimental to the myocardium, and should be avoided.

ORATIONS

PRESIDENT'S ADDRESS.*

By Louis Frank, M. D., F. A. C. S.,
Louisville.

Mr. Chairman, Ladies, and fellow members of the Kentucky State Medical Association: It would be most unseemly did I not express my deep sense of gratitude to my friends and the house of delegates for the great honor they have bestowed upon me in selecting me to lead this association for the next twelve months.

We know that the real work of the association, the maintenance of interest in it, the actual laborious task of shaping the policies of this body and carrying out such desirable measures as you may suggest, is done by our brilliant, beloved and most excellent secretary, and to him rightfully belongs the credit. Yet, the nominal leadership of the profession of Kentucky is no mean honor, and may I be forgiven the conceit when I express the truth of my thoughts and say to you that the "bee has been in my bonnet" for many years. Being a young man, I would not like to say how many, though in former times one might graduate at an early age. Be that as it may, it has been the ambition closest to my heart, the one wish in which I feared to indulge myself, the desire, that has in no small degree shaped my destinies, and that is today realized in taking the gavel to preside over your deliberations.

I have always felt that ambition was a most worthy virtue, even though one "shot at the moon." A man without high aspirations in his work usually achieves little in this battling world of ours. Any dog can run yelping with the pack, but the leader has been compelled to fight his way to that "high eminence." Few are destined to lead, but all may follow; therefore, the fighter to be in the forefront may and should be forgiven his aggressiveness, provided he keeps always in mind that we have passed the brute stage in our development.

But, I am thankful to you, my friends, and have a deep sense of generosity in me toward my enemies, and I feel especially today and at this hour such an overwhelming sense of kindness which can only be the outgrowth of kindness from others, that I wish to be at peace and in harmony with all men; and my hand is out to every member of this association in a grasp of friendship, with the assurance sincerely felt and expressed that my labors during the ensuing year and hereafter shall be dedicated to your welfare, to your interest and to your advancement, personally if you choose, but always professionally.

Who is there among you that does not thrill at the name of McDowell, Benjamin Dudley, Brashear—all Kentucky doctors? Who is there among you whose bosom does not swell with pride in the realization that he is an active member of an association of doctors which has had as honored members such men as Gross, Jackson, Skillman, the Yandells, Cartledge, Marvin, Bailey, Wathen, Vance, Roberts and McCormack, whose names all mark effort, labor and earnestness for their fellow men? These have all passed away, they have completed their journey, and rest peacefully beyond the reach of praise or criticism. New names have taken the place of theirs on the annual program, yet in their going each of us has felt a personal loss, an individual bereavement. Within the last few months we have been deprived of our great leader, the one man more than any other to whom is due the organization not only of our state association, but of the great body of doctors in our beloved country. It is fitting that this first session of our meeting be set aside as a memorial gathering in his honor. Peace to his ashes, rest to his soul.

We must not forget, however, those that we still have with us deserving of bouquets while able to appreciate their fragrance; among them is McMurtry, a militant leader in all righteous causes, one to whom not only the profession of this state owes much, but to whom the world at large is indebted; Barrow, of Lexington; Richmond, from the Purchase; McChord, from the cedars of Lebanon; Kincaid, from the Big Sandy; Stucky, from the Bluegrass, and a galaxy of brilliant younger men who may, I trust, put the "Old Commonwealth" to the forefront in professional standing and restore to her the proud position she once occupied as a leader in medical teaching and thought.

It is a great pity that our medical school has no chair for teaching the history of medicine in Kentucky, that the traditions of Old Transylvania (the first medical school west of the Allaghenies) are not instilled into the minds of our coming associates, that they lack the idealism which must come from a study of the character and work of the great men of our profession. "May we not try, and especially you of the coming generation, to gain inspiration for the conduct of the higher medical life from the work and the careers of our fathers in Israel?" (DeSchweinitz).

But our medical schools are too busy teaching scientific facts to waste an hour in idealistic study. It may be that this lack of professional religion may in a large measure be responsible for the deplorable condition in which we find ourselves, for it does seem to me that we are running, not only in teaching but in practice, to the ultra-scientific and the commercial; and I fear me that the former is largely responsible for the latter.

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* Delivered before the Kentucky State Medical Association, at Paducah, Kentucky, October 16-17-18-19, 1922.

It does us good at times, as individuals, to quietly sit ourselves down and take stock, to ask what have we done and "where do we go from here?" What we have done as a profession we fairly well know, but who can say whither we go?

"The traditions of the medical profession are being rapidly lost, the noblest of professions is losing its nobilty. In the old days the students learned the traditions of the profession from their doctor-preceptor before they went to medical college, and from their doctor-professors while in college; but the doctor-preceptor is dead, the doctor-professor is dying, and the school-man-professor never having learned the traditions of the profession cannot impart them to the student. As a consequence we see the recent graduate worshipping at the shrine of Mammon instead of at the shrine of Hippocrates. The Hippocratic oath is no longer administered and the recent graduate does not feel its obligation. He does not hesitate to "cut for stone," or perform any other difficult surgical procedure for which he is inadequately trained, provided there is a large fee in sight; but he seldom plays the role of the Good Samaritan Among the graduates with whom I have come in contact during the last five years I can think of few who seemed to be imbued with the old idea of rendering all the service he could to humanity.." (Bonnifield). I regret exceedingly that observation has forced the conclusion that too many of our students are becoming inculcated with the idea that they are specialists upon graduation rather than doctors and permit the business side of their profession to dominate their conduct. Here and there discriminating, thinking students are complaining of the arrangement of their curriculum and the failure to correlate their teaching, due I am convinced because of too many teachers who take themselves too seriously as teachers without a thought of the practical usefulness of their output.

Fault has been found with the so-called standard of requirements before entering the study of medicine. It does seem to me that the student must have a knowledge of such allied sciences as chemistry, physics and biology, because these are absolutely necessary to a proper understanding of physiology, which, with anatomy, is the very cornerstone of successful interpretation of diseases; but a knowledge of Latin, Greek, German and French is more or less in the strictest sense an accomplishment soon forgotten, but also easily regained by those desirous of a wider foundation upon which to build, or may be acquired even after the superstructure is finished should broader educational requirements demand it. Unless we take heed we will soon have reached the point where the young man in ordinary financial circumstances will no longer be able to study medicine. The time and money spent in preparation, in study at a medical school with the internship which should follow, will of necessity exclude many.

The constitution of the United States says, I believe, that all men are born equal, and it would seem as if we have accepted this as an actual fact. Either that or the bright man, he of greatest intellect, is put upon the same equality with him of lesser mentality, and that smacks of unionism where the standard is set by the slowest worker. Why is it that it is deemed impossible for a man to master the teachings in a medical school in less than four years of eight or nine months each? If four years is fixed upon as the average time for the average man to acquire the rudiments of the profession, why handicap the brighter man and hold him back? Is he to be penalized because, forsooth, a group of all-time professors who will never practice medicine outside of their professional hospitals had not this student's keen mentality? To me such a rule seems stupid, and what difference does it make if a man has the knowledge and can pass a satisfactory examination, whether he has spent one year or two in anatomy or histology, and the preclinical branches? Graduation should be based upon ability and fitness, and not upon time, recognizing always that clinical knowledge can come only from experience. But we have drifted into the hands of pedagogues and are more or less at the mercy of the heads of great endowment funds; the teaching centers, especially of medicine, seem to be partaking the character of big business.

Let us take a look into our medical schools: A careful survey of medical colleges reveals some very striking facts, and, from the standpoint of centralized control, is a most interesting study. One will find a certain number of richly endowed schools, probably with more endowment in sight, completely controlled by "full-time" men in all departments, and that these schools not only dominate the teachings of our schools but seem actually, through their activities and propaganda, to be moulding the thought of the profession. They have behind them the enormous funds of Foundations, in addition to their own endowments, and seem to care little for the actual necessities of medical teaching based upon the requirements of our communities as a whole. Our own University of Louisville has traditions which far overshadow and outweigh endowments and money and which it would be impossible for some of these endowed schools with all their wealth to develop. It has stood at the forefront, has honored alumni in almost every state; yet it is permitted to eke out an existence, struggling for sustenance, and maintained only through the efforts of those who have a pride in their profession and in its traditions. Despite its handicaps, through the loyalty of our city administration and the determined efforts of its professional staff, the University of Louisville, just as a number of other schools, is turning out good, practical doctors to go into our homes and communities and practice their profession among our own people. May we express the hope that we will never become dominated by the teacher-professors, but that always the teaching policies may be moulded by the doctor-teachers? It would be well if every full-time teacher should be required as a preliminary course to his teaching in a medical college to practice either urban or rural medicine, preferably the latter, to earn his salt for a period of several years. I am sure it would endow him with greater charity and give him a much broader insight into the requirements, from a teaching standpoint, of the doctor than he has today. Pedagogics as such is a great profession, but it should not attempt too much to mould the thought and mind of its professional students along theoretic pedagogic lines, and certainly not to the exclusion, in medicine, of practical clinical teaching. I would repeat that the best medical teaching for a man who expects to be a practicing physician or surgeon is that obtained from the man who devotes his time in part to practice, who is not surrounded upon every side by laboratory helpers, who has been compelled to make his diagnosis with those senses with which he was born and which he has developed, and who has been compelled to depend upon his own powers of reasoning and his own reading and study.

Do not let me be misunderstood, as large endowments, rich schools, with scientific teachers are not intended to be disparaged. Upon the contrary, it is so well recognized as to be universally acknowledged and accepted that the Johns-Hopkins Medical School has had the most profound effect upon the medical schools and profession in this country in not only the elevation of teaching but in stimulating and directing professional effort in the right direction. In later years, however, since the departure of that greatest of all clinical teachers, Osler, even this famous school seems to be passing in its medical department under the influence of those crying for "all-time teachers." Under Osler's influence and leadership the medical department of Hopkins, as I see it, shaped its own policies and destines, which later were the envy of most medical institutions, But, with his going, these seem also to have passed; and yet research schools, training of medical pedagogues for the undergraduates, is not only needed but is an urgent requirement. We think such can be amply met, however, without every medical school in the country yielding to the same influence and control. There are schools in this country, two in existence over a century, both among the very oldest institutions for teaching medicine which we have, neither of which, despite their endowment, or possibly because of it, have yielded in any manner to this tendency, but, per contra, have always outlined their own medical policies, have year after year graduated men prepared to go out as doctors and practice medicine. These schools have aspired to offer their product as practical men not doctor-scientists, not school-man professors. Where can the product of Harvard, or Jefferson or Pennsylvania be excelled? All are dominated by clinical practicing teachers, not by the all-time professors nor pre-clinical instructors, students of science not of men, women and children, proficient in the interpretation of laboratory tests, ignorant of human emotions and reactions.

Verily, Verily I say unto you, Each of your schools of medicine must have in its Faculty as clinical teachers outstanding men of reputation and skill in each of ye practical branches—Surgery, Medicine and Obstetrics. For such is the nature of man even ye embryo physician or doctor that such as teacheth him practical things these will he take unto himself as idols and ye greater the kindness and humanity, the erudition and skill of such master teachers just so much more shall ye student body be imbued with love, charity, understanding and idealism in their pursuits in that greatest of all professons in which each of us is a modest and earnest worker.

There are in some of our states institutions most excellent in character conducted at the expense of the state, and doing magnificent work which they will continue to do so long as they are maintained divorced from politics. With politics come many dangers, the greatest of which at this period is the socialistic tendency, which in its relationship to our profession exists in utter disregard of the demands and requirements of the country as a whole, and which is now, as always, communal in its character. What might not our own legislature have done at its last session, had we had a going medical department as a part of our State University?

It might be well if this association would seriously consider the subject of specialization in medicine, and through its influence institute measures which would demand at least in this state five years in general practice before a graduate was permitted to practice a specialty. A specialist should be among the best informed of men. Unfortunately as a rule he sees only what is in the narrow domain of his own particular line of work, and the modern trend in medicine is more and more to specialize. We feel sure that this is in a measure partly responsible for such commercialism as has come into our calling. The grouping of specialists, or group practice as it is being called, is a most excellent thing, and unquestionably the patient derives the greatest benefit from study by such a group, provided always that each man in the group is actually a specialist in his line of work, and that this group is not gathered together for the purpose of the exploitation of those who may unfortunately feel compelled to consult it. As we see it, we must confess with regret and sorrow that to us it seems as if the outstanding motive of many "Groups" or "Clinics" is not the desire to give the patient the best, but to do the most to him, much of which is unnecessary, more of which is bad, all of which is often misinterpreted, and done purely for the purpose of charging the patient an exorbitant fee. This was not the purpose of group practice as proposed by Cabot, nor is it my idea of group medicine. Such clinics or groups, as I have previously said, are commercial enterprises attempting to conceal their cupidity behind the cloak of the profession. So flagrant has this become that the American Medical Association has appointed a committee to look into the matter and report their findings. Would it not be well for a permanent committee from our own houes of delegates to look into such clinics as operate in our state or in the future may ask the support of our people and our profession?

Another important problem which confronts us, and a very serious one, is that of the trained nurse. As technicians, as anesthetists, as public health workers, they are relieving the busy doctor of many burdens and doing their work well; but I fear that under the present method of management in our own state they are also raising their curriculum to a point a little too high. The trained nurse is a public servant just as is the physician, and should be ready at all times to answer the public's call wherever it may be. In the training schools the patients and not the curriculum should be the first consideration. I am firmly convinced that there should be a closer co-operation between the medical profession and the trained nurse; there should be a board of physicians to act in an advisory capacity to those who are guiding the destinies of our hand-maidens; otherwise, as I see the hand writing, the training schools for nurses will soon be in the same situation as the training schools for doctors. Cannot a closer relationship be established? If it is desirable, and I think it is, then I am sure it is feasible, and I would urge upon the house of delegates the appointment of a committee to study this question most closely.

Medical societies: In a review of our society activities I have been impressed by a few things which it might be well in this annual address to discuss with you. A study of the program presented would lead me to suggest the formation of an additional special section to meet the day before the general session, its time to be devoted entirely to a discussion of surgical topics. I am convinced that the establishment of such a section would attract many to our meetings and would give greater opportunity in the general sessions to discuss medical and obstetrical topics, which, after all, are the two branches of practice in which the general profession are most interested. Such an arrangement would fulfill to the greatest extent not only the demands of the general practitioner, but in addition to enhancing the scientific value of our meetings would enable this association to function to much greater advantage.

A survey of the activities of the various county societies has produced a feeling of amazement at the entire absence of scientific meetings in many counties and the paucity of such sessions in more. It would seem as if many societies continue a mere nominal existence. I would think it a good plan, in certain districts of the state, instead of having individual medical societies, to combine those counties in which there were a few doctors all of whom are necessarily busy, and have scant time for medical meetings, with counties adjacent in one at least of which there were men who could give the time necessary to prepare essays or case reports and endeavor to have meetings three or four times a year. I know that such a plan can be worked. I feel sure that it would result in much good in the building up of the profession and in an awakening of its membership to the value of professional associations. As it is now, it seems to me that the county societies with nominal organization exist only to maintain their privileges in the state association. If this surmise or assumption is true, they could be merged with those societies doing actual work and yet retain all their rights and privileges, social, political and otherwise. Each county could and should be endowed with the right to be represented in the house of delegates upon the same basis as at present. The net result of such an arrangement would be better and regular scientific meetings with clinics, to which foreign talent could be invited and would delight in attending, without yielding the influence of the county in the state association deliberations; this influence on the contrary would be increased.

We would also call attention to a desire for closer affiliation between the state association and allied organizations. Recognizing fully that the State Medical Association as such has a peculiar though fitting function, and should bring even the wayward into the fold, it yet seems that a closer relationship, a laison between medical bodies is an urgent necessity if the greatest benefits are to be obtained and the greatest good done our co-workers in a common cause. Our influence for uplift could thus be greatly enhanced and, exerted in the right direction, as it must always be, we could avoid unjust criticism as to our motives and actions. Despite the frailties of human nature and the many vicissitudes which assail us, our path is ever upward. Altruism must ever be the watchword of the Society as of the individual, to give as it has received its constant endeavor. "If this is done I think we need have no fear for the future, and I feel sure that formed with the high purpose of elevating the standard of medical education and purifying the methods of medical practice, it has never forsaken its lofty aim nor shall it if we approach our task with rightness of heart, force of character and clean straight thinking." (DeSchweinitz).

Detection of Phenols Produced by Bacteria.— The method proposed by Bell is dependent on the formation of an azo dyestff, brought about by the reaction of a diazotized aromatic amin and a phenol in alkaline solution. The formation of such a colored compound affords an extremely sensitive method for the detection of minute quantities of phenol.

ORATION IN SURGERY

ACCIDENTS IN THE INDUSTRIES.*

By J. Garland Sherrill, Louisville.

It is really remarkable how indifferent the people of the United States are to accidents and to death therefrom, always provided that the members of one's own family, friends or acquaintances are not among the casualties. The total number of casualties occurring in this country is really alarming, and the mortality therefrom is more so. A large proportion are not recorded so as to be available for statistics. In the United States registration area in 1920 there are recorded sixty-two thousand fatalities from accident. Most accidents are the result of carelessness upon the part of some one, very frequently of the injured person himself, often from carelessness of a fellow employee, sometimes from that of an employer; many are due to physical tire reducing one's alertness so that outside things make little impression upon his consciousness. It must always be remembered that man is not a machine, and prolonged physical or mental strain render him unfit to accurately perform certain tasks. It is very dangerous to continually subject a railway dispatcher to working over-time. In an emergency this might be done very safely if the man is fresh at the start. The same thing is true of the engineer, the flagman or anyone connected with the transportation and safety of a large number of individuals. There have been efforts to pass laws for the protection of the public and of the workmen themselves because of this fact. The common carriers should need no legislation on this line because it is to their best interest and a great financial saving to have fresh, alert, careful men in their employ who are not excitable, over-impulsive or uncertain in time of danger or stress. Men should be placed in a position of this kind only after the most rigid mental and physical tests of their fitness for the work.

In the factories accidents cause in addition to the physical damage to the individual, a loss of production from his services, a loss to his employer of the amount set aside for his care and an impairment of his earning capacity to his family. If the accident is severe he may become a ward upon the care of the State. For these reasons every one is interested in accidents of this class. Only recently have we realized that the proper adjustment of expenses incident to the care of injured workers between the employer and the employee is highly important to the success of an industry. The older countries of Europe are much farther advanced in the study of this social and economic problem than is the United States. Many of our best minds are engaged in the study of the best methods of prevention of injuries and also of providing the best means of caring for the injured in the manufactories.

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* Delivered before the Kentucky State Medical Association, at Paducah, Kentucky, October 16-17-18-19, 1922.

Then, too, there are certain occupational diseases which practically come under the same class, but are perhaps more difficult to adjust as far as compensation is concerned. At first glance it would seem easy to arrive at a proper adjustment of the responsibility of the employer and employee in the care of the injured, but for some apparent reasons this is not the case. A manufacturing plant in making up the cost of its product necessarily takes into account the cost and upkeep of the buildings and the machinery, and allows so much for depreciation and repairs. In the case of labor, however, there is charged to production the wages of the number of employees necessary to obtain a certain output, based on the view that if a laborer ceases to function his place is filled by replacement. This view, however, is not tenable because it is not fair, because unsatisfactory to the employee and not to the best interests of the State. Particularly is this true when the wages are small and the discards from the factory labor become a care upon the community. The ideal solution of this relationship between employer and employee would be to permit the product to cover the expense incident to keeping the operative force at the highest point of efficiency, including the costs of the care of the injured and a proportionate amount for the support of those who continue to the point of infirmity or old age.

There are several difficulties in putting the above principle into effect. A very important one is the fact that labor is an uncertain quantity; it is restless, here today, there tomorrow, unstable, difficult to control and I am sorry to say at times unreasonable. The costs therefore incident to the employment of labor are likely to be subject to wider variations than is the case in the upkeep of the efficiency of the machinery.

Because of the uncertainty and instability of labor the manufacturer is forced to provide a liberal margin to cover exigencies arising from this source. There is a most important factor in question here, and that is lack of trust and cordiality between employer and the employee. The passing of the intimate personal contact between employer and employee which existed in the small plants where every one in the factory was personally known to the manager, gives to the laborer in the new state of affairs a sense of separateness and isolation which is not conducive to cordiality; he is therefore apt to become suspicious that he is not getting all he deserves as the result of his labor. He sees some men advanced because the immediate foreman or boss fancies them, while he remains stationary. His resentment does not stop at the boss but he feels the same toward the entire organization. It does not take many disgruntled persons to upset the entire labor situation in a plant.

Very few plants can obtain highly efficient, fair-minded men to take charge of departments in the factory and now and then one of these by his personality and bearing can cause no end of unrest.

There seem to be certain remedies for the condition in question:

1. To adjust the ratio of profits fair to the capital invested, and the proper amount to be applied to labor. Then to estimate from the experience of three years what provision is to be made to carry over dull times, both as to capital and labor; in other words provide a sinking fund after all maintenance is covered, in which both capital and labor participate. This may be worked out accurately upon a percentage basis, and if capital is earning nothing during such times labor must accept the basic wage, taking off the profit over the basic wage earned during dull times. The sinking fund should cover the expenses of accidents which are unavoidable, diseases directly responsible to occupation, and a certain pension to men who have remained employed in the factory for a certain number of years, and reached old age or incompetence not due to their own action. If desirable a certain per cent of the earnings of capital and a similar amount from that of labor may be added to the sinking fund during prosperous seasons to take care of a part of the loss sustained by employers because of accidents not covered above, to take care of sickness up to a certain amount. If desired a full-time physician and nurses may be employed.

This form of compensation can only be made satisfactory when the amount paid during disability is less than the normal pay.

There will always be some individuals who will be inclined to draw the lesser pay if permitted to loaf on sick leave, so the regulations concerning this feature would require much thought, and reduction of wage or discharge should be the penalty of malingering.

At certain stated periods if the sinking fund shows a sufficient profit to justify it, there should be a distribution to capital and labor based upon the same basic ration as formulated above. By making each laborer a participant in the accrued sinking fund profits, there will be provided a sufficient self-appointed police to prevent deadheading. This will insure a more speedy restoration to active work upon the part of the injured, from the highest to the lowest employee and will favor better and more regular production.

It may be said that this plan is utopian, which is in a measure true, but it is certainly within the limits of practicability. The greatest objecton which may be offered to it lies in the fact that by putting aside such a sinking fund it will make difficult competition with factories in similar lines which do not make such provision.

It appears reasonable to suggest that under the above plan properly adjusted, the increased quality and quantity of production resulting from having labor well cared for will more than take care of the sinking fund. The second great objection will be the question of how will the sinking fund be safeguarded, and what voice will labor have in the management of the plant? If both sides enter into the discussion of these two points with open minds there should be no trouble upon this score.

It is our opinion that the factories first adopting such a plan will be far in advance of any others, and a few run on this principal will soon find that laws may be enacted making its adoption obligatory to obtain permission to open any factory, doing away with those laws now in force as obsolete.

A few words may not be amiss as to the relation of the physician to such a plan as opposed to present compensation. The present methods of compensation for injuries are not satisfactory. (1) The employer is forced to carry insurance to cover him from loss incident to accidents at any arbitrary rate the Insurance Companies determine. He is not covered as to the loss of time the injured employee is off duty nor for any loss in quantity or quality of his output. He must bear the expense incident to the profit of the Insurance Company plus its necessary sales expenses.

(2) The employee is only protected for a limited portion of the time he is injured and only for a small portion of his medicinal, surgical and hospital expenses including drugs, medicines and dressings. The remainder he is forced to carry himself out of the amount allotted to him by law (Workmen's Compensation).

(3) The Workman's Compensation law does not deal fairly with the laborer or with his medical attendant if the injury is at all serious. Of course trivial injuries are covered by the present law. In any injury, however, that is severe enough to extend beyond the period of ninety days, the law fails to provide for more than a very small proportion of the actual necessary outlay for his care. The excess over the legal allowance must be carried by the employee himself, or in case of his inability to pay this excess, by his medical attendant or by the community at large. There is no obligation upon the part of either of the latter to assume this cost.

It is very evident then that this law as at present in force in Kentucky is not just in its provisions, and is in reality only a sop held out to labor instead of a square deal. How may this be remedied? By the plan of the Sinking Fund as prescribed above, and by per capita contribution from each laborer plus a percentage, based on the number of employees, provided by the employer, to cover the entire expense of the care of those injured in the industry. By such an arrangement the profits on the insurance would be employed directly for the relief of the injured. There would be a sufficient fund provided to assure first class medical and nursing care. Instead of the cheapest, the best services could be had, and as a result of this one fact alone there would be more prompt restoration to active work of the injured and a minimum of time lost. A well equipped infirmary with a competent nurse in attendance and a high class surgeon in charge is the ideal for good service in the factory. Regular examination of all applicants to employment is essential and likely to be a great saving to the employer as well as employee. The physician can best determine if a person is unfit for a certan occupation.

Effect of Diet on Intestinal Flora.—Certain methods for ascertaining the relative proportions of groups of bacteria of the intestinal tract are described by Cannon particularly in studying the hydrogen-sulphid-producing organisms and the spore-producing anaerobes. By the use of these methods essentially the same results as those of Kendall, Rettger et al and Torrey have been obtained. In two experiments with human adults extending over a period of ten days a diet composed of bread, milk and lactose markedly encouraged the development of the aciduric organisms, and in one experiment of the same time period a diet high in vegetable protein led to a predominant aciduric flora with the elimination of anaerobic spores.

ORATION IN MEDICINE

GROUP MEDICINE.*

By Ernest B. Bradley, Lexington.

ORIGIN

Group medicine owes its origin chiefly to two things. First, to the rise of specialism in medicine and second to the spirit of business co-operation.

When the total of medical knowledge became too great for one man, specialism was born and since that time, not indeed very far distant, specialism itself has grown so enormously that now there are listed fifteen distinct specialists and each of these is further subdivided. It is natural that as the amount of medical knowledge continues to grow the subdivisions of the specialties may be expected to increase. It is no longer possible for any one man to have the knowledge, technical skill and training in all branches to care for every patient intelligently. Indeed there are many patients that require the services of numerous specialists to make a proper diagnosis and to give adequate treatment.

If specialism is one of the main causes of Group Medicine, co-operation is the other. For many years in the business world co-operation has been recognized as being economically more efficient than individualism and it is but natural that such a business principle should have been taken notice of finally by even the medical profession—notoriously unbusiness-like as it is. The experience of many of the members of our profession in base hospitals during the world war also made a favorable impression upon these physicians by showing them how efficient co-operative effort can be made.

The rise of the laboratory and of X-ray diagnosis, the multiplicity of new diagnostic tests, and the enthusiasm in locating focal infections, also, have contributed their share in bringing home to the doctor the need of systematic examinations by a number of specialists. The natural consequences of all this is Group Medicine. It is not a new idea. Already there was in the Mayo Clinic an illustrious example on a very large scale which by its success gave the greatest encouragement to the formation of similar organizations. Now, over almost the entire United States there have sprung up these "Groups" or "Clinics."

VARIETIES OR GROUPS

The principale is not entirely new. The closed hospital staff affiliated with a medical school have for many years practiced a kind of group medicine. Through these groups in these hospitals the very poor have been enabled to get the very best medical attention the rich have as private patients of these same men also received the benefits of this system. It remained for the Co-operative Group to give equally good service to the middle class.

Many members of our profession are practicing the principles of Group Medicine in one way or another. Thus, we have what has been termed the "One Man Group." This is represented by the type of busy surgeon, internist or specialist who engages assistants and technicians sufficient for his needs. This may be a strictly surgical group, a medical diagnostic group, or a group for any one of the various specialties. Then again, there is the loose or overlapping group. This is seen in the large cities where by association in the same building or for other reasons, certain specialists make use of the services of each other and of a clinical or X-ray laboratory situated near them.

However, it is not to these types of associations that the term Group properly belongs. By this term is usually meant the close co-operative association of several physicians, usually in partnership, who occupy their own building or are situated in the same building with their clinical and X-ray and other laboratories. Their business is handled through one office, their clinical cards are uniform, and their association is such that all have a voice in the management.

The function of such a group is to make an accurate diagnosis so that proper treatment may be outlined or given. To reach such a conclusion, advantage is taken of examinations by specialists if indicated and of all the data that can be accumulated through the modern diagnostic procedures.

OPERATION

The plan of operation varies in different groups, but is substantially as follows: The patient comes to the Clinic and is referred to a medical man for history and general examination. Of it may be that the patient comes seeking some one physician. After a thorough history and general physical examination with the ordinary examinations of blood and urine, the diagnosis may be certain; in which case there is no necessity for group intervention. On the other hand if special examinations are indicated, or the case is one for a general diagnostic survey, other members of the group may be required and many special tests may have to be employed. The result of all these tests and examinations are reported to that member of the group to whom the case belongs. This physician sums up his conclusions and usually calls for a discussion of all aspects of the case with his colleagues who have assisted. A correct conclusion with directions for treatment may be made or it may be necessary to keep the patient under observation. Other tests may be required which have been suggested by the previous findings. While under observation, this patient becomes the subject of many consultations with one's colleagues. If an exploratory operation is the final means of coming to a definite conclusion, all interested in the patient are usually present. The patient is getting the benefit of the combined knowledge and skill of several specialists and the physicians themselves are learning from each other and from the final outcome of each such case.

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*Delivered before the Kentucky State Medical Association, Paducah, October 16, 17, 18, 19, 1922.

It has been said that "In a complete diagnostic survey, valuable information often comes from the most unexpected sources; the surest way to get a comprehensive view of the patient, the causes and needs, lies in the making of a complete survey of his entire system by clinicians competent to pass upon special fields and thus reaching a composite diagnosis after actual discussion by the examiners in consultation assembled. In this way little would be overlooked and the enthusiasm of specialists would be balanced by that of his fellows."

APPLICABILITY

To what kind of communities is Group Medicine applicable? The medium sized city of from thirty to one hundred thousand is the ideal location of the group. It is in this environment that physicians who have begun to specialize a little may do so completely on forming a group. New appliances and methods of treatment are easily acquired by a partnership of eight or ten men when the expense might be prohibitive for any one of them. However, groups have been formed in much smaller communities. In one place where there were only seven physicians practicing, these seven men have made a successful group.

The group idea does not lend itself so well to large cities since there it often happens that certain men practicing various specialties are drawn together by having offices on the same floor or in the same building. These groups or cliques overlap to a certain extent and their members are afraid to consolidate for fear of antagonizing others who refer their work to them. This fear may prevent the formation of some groups which if put into operation would be highly successful.

OBJECTIONS

Among the objections urged against group medicine, one authority mentions six. These are: (1) that it is unnecessary; (2) that it is too time consuming; (3) that it is too expensive for the patient; (4) that it is too mechanical; (5) that it commercializes medicine; (6) that it fosters cliquism. To these may be added, (7) that it tends to destroy the family physician. These objections will be taken up in order.

The objection that Group Medicine is unnecessary or superfluous is made on the ground that any medical practitioner can call in consultation any specialists that he wishes, that he can get the benefit of their various opinions and reports and with the aid of the laboratory findings can render the same service as a group. This is no doubt true, but this itself is the principle of group medicine. The variation in this practice from that of a closely organized group under one roof lies more in the extra expense to the patient when all this is done and the much larger amount of time consumed when all the various specialists are widely scattered. It is urged that group study is superfluous in the majority of cases coming to a physician. It is not claimed by any one that all cases should be put through each and every examination. In perhaps 60 to 75 per cent of all cases the diagnosis can be made and the treatment outlined by the physician who first sees the case, but what about the other 25 to 40 per cent in which the diagnosis is obscure? Even though the diagnosis may be easy would it not be far better, more rational and in the long run more economical to the patient if a complete survey be made? It is not always possible to impress this fact upon a patient coming with some slight evidence of focal infection, but truly how short-sighted it is to make too few examinations. Before the patient is permanently benefitted it is likely that many examinations will have to be made and a long time of uncertainty and suffering can frequently be saved by a first complete examination.

The second objection that it is time consuming can be answered quickly. The whole question is whether it is worth the time. It certainly will not take as long for a compact group to make the same number of examinations as it will for varied specialists scattered throughout a city. Not much time is lost by the patient in getting around and not nearly so much time is spent in the general reception room of the group as in the combined waiting rooms of the same number of scattered specialists. In fact it often happens that in being referred from one doctor to another situated in different buildings the patient gets so worn out that the complete examination is never made.

The third objection, that it is expensive to the patient, may be true or not. Certainly if the service rendered is inferior it is costly at any price. It need not be nearly so expensive as the same service rendered by individual examinations. From the number who seek various groups I am inclined to think that the laity believe that they are getting their money's worth. Naturally the charges are based in a way on the patient's ability to pay and those in moderate circumstances should be able in a conscientious group to obtain for a moderate fee all that until a few years ago was within the reach only of the very rich or very poor.

The objection that it is too mechanical and that personal touch between physician and patient is lost may or may not be valid. If the group is conducted properly this need not be. Necessarily many examinations are made by others, but each patient should have in the group one physician who is responsible for that patient and to whom the patient may turn for advice. If the survey is only diagnostic in its nature the family physician must still with a full knowledge of the group's findings exercise the same care as in all other cases.

By the objection that it commercializes medicine. It seems to me that it is time that some business methods were injected into medicine. The old family doctor who kept no books of account, sent out no bills, and who didn't know what a clinical history card meant, is a lovely character of the dear old days gone by, but it is inconceivable that any one of us would be willing to go back to his method of practicing medicine. If Group Medicine exploits the patient this is a valid objection. But does it? The doctor in the group who is responsible for the patient usually has the right to say what the patient should be charged. Is he more inhuman or dishonest after joining a group than he was before?

The danger of "cliquism" cannot be answered as satisfactorily as the other objections. Naturally one turns to the specialists in one group for advice but no doubt circumstances arise where the patient might receive more benefit by being referred to some expert outside one's own group. This objection is sound and must be reckoned with. Every compact group must guard against it. This failing, however, is one that is common to the medical profession at large. Personal reasons often influence us in seeking advice. Whether in or out of a group the doctor commonly turns for consultation to those who are personally agreeable and friendly to him. However, no consultant should be employed who cannot give the best service in his line. The welfare of the patient should be paramount and should be constantly borne in mind and the patient should have the advantage of the best advice no matter where it is to be found.

The objection that many groups to whom a patient is referred fail to report back to the family physician is no objection if the members of the group are ethical and fair-minded. No group should be worse than its individual members. Even if not imbued with a sense of square-dealing this would be very poor business and it seems to the writer that instead of this being true, on investigation it will be found that it is the usual thing—a matter of routine—to refer the patient back to the family doctor with a report of all diagnostic findings and suggestions as to the treatment. The history blank of all groups familiar to the writer, contains a place on the first page for the name of the family physician and for the date the report is sent to him.

It might be argued that there would be no work left for the family physician. This is absurd as all the ordinary diseases, injuries, etc., are still to be taken care of only by him and there is every reason why the major part of the medical treatment should still be left to him. The cases most likely to require group investigation are the chronic ones and these are the patients concerning whom the family physician is usually most willing to obtain aid in diagnosis.

ADVANTAGES.

The advantages of group practice to the physicians who belong to them are many. New apparatus for diagnosis and treatment may be bought by the group which would be impossible for the average individual on account of the expense. Again, each member of the group can specialize in the field for which he is most fitted by inclination and training. It no longer becomes necessary for the medical man to do a little laboratory work, some surgery, and little X-ray, attend a few cases of obstetrics, and do a little of this and that. He can refer this work to the member of the group specializing in this particular line at once. By concentrating upon a single specialty, time is saved, efficiency is gained and experience comes with much greater speed.

The constant touch with the other members of his group teaches him their point of view. He is continually on his mettle. His mistakes are quickly brought home to him, and he must improve or go under. In fact his associates often seem a little too glad to catch him in an error. The increased facilities of his library, increased time for reading and study, and the the much larger number of cases of a particular disease all tend to make him more expert in his own special field. As a member of a group he is forced to keep better clinical records and the extra clerical force which may be employed allows him to do this without undue effort. He has more time to go away for study and recreation and he knows that his work will go on just the same and that when he returns his patients will be returned to him. He is freer from financial worries, for if sick his clinic is enabled to carry him. His income may be no greater, but he will be giving to all his patients regardless of their financial standing as exhaustive an examination as is necessary.

Before joining a group he often wishes for special laboratory tests, X-ray, and other technical examinations for his poorer patients. He can have these made now and need not fear criticism because they cannot pay for such examinations. If he can give such service, he cannot keep his practice from growing. But the chief advantage to the member of the group is the pleasure that he now gets out of his work. This satisfaction in working with congenial associates, in being able to have complete examinations made when required, and the feeling that he can talk his cases over with his colleagues freely makes the practice of medicine a joy unknown before. Group Medicine may be an experiment, many groups may fail, but the principle upon which it is founded is sound; it is logical, business-like, efficient and ethical.

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ANNUAL ORATION

UNITED STATES IN PANAMA *

By Dalferes P. Curry, Assistant Chief Health Officer, Canal Zone, Panama.

Words fail me.

Home again! Only one whose home is the Old Kentucky Home—and one who has been an exile from that home for long years—can appreciate my feelings as I gaze into your faces here tonight and see once more the old bonds renewed; old friends to greet; past days of comradeship revived. Little did I dream, 5 years ago, at the last meeting I attended of this distinguished association, most of us in uniform or preparing to don it, that I should be practically the last to return to the fold, or that perhaps never shall that happiness be permitted me.

And therefore, Mr. President, and members of the Kentucky State Medical Association, I tender you my thanks, not only for the great honor you do me in inviting me to address you on this occasion—one that I feel merits a profounder learning, a more eloquent tongue, than mine—but my deepest emotion and gratitude are due to the warm welcome, the outstretched hands, from friends of former days; and for the opportunity given me to reinvigorate my soul with these tokens of friendship. These shall stay with me imperishably, long after my spoken message is forgotten both by speaker and hearers.

When I received notice from your secretary that the Council had bestowed upon me this evidence of their confidence, I was dismayed. What message can a man, working for the whole of his time under midsummer skies, in tropical deluge and swamp, jungle and clearing, or the parching winds of the dry season, find amid such surroundings to carry back to his brothers in an entirely different setting? To you whose summer is short and whose winter is long, and where the hand of man has for generations been making nature bend to his will? Yet were I unfortunate indeed did I yield to the tropical languor; become a slave to indolent routine, and close eyes, ears and mind to the great privilege that has been mine in the last five years; or were I, having become a humble integral part of one of the most stupendous achievements of modern sciences, sitting in the councils of the men now directing that enterprise, hearing from the lips of the doers themselves the story of their achievement, yet fail to find inspiration therein.

Roosevelt, Goethals, Gorgas (the last not the least of these) whose names are already a mighty tradition in their own and foreign lands,—and a whole host of others, less famous perhaps, but who gave every atom of brain, blood and courage to their allotted tasks—to them the world owes an acknowledged debt of gratitude. Not merely that commerce, borne in mighty ships of all nations, now finds easy, quick, and safe passage through the once tenuous, but too-too solid, link of the Isthmus of Panama,—but that here was mankind given a demonstration of the might of a powerful nation—not in war, not in selfish exploitation of weaker neighbors, but in the expenditure of its treasure in the peaceful arts and sciences for the benefit of all mankind. Well may the official seal of the Panama Canal bear the motto "The Land Divided, the World United".

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Through that Canal pass the fleets of the world; warships (fortunately now on errands of friendly or diplomatic intercourse, and let us hope, never again to spread destruction); stately passenger liners from and to the orient and the antipodes; freighters bearing precious burdens of luxury, convenience or necessity; fuel, food, materials and tools for the busy world. From its administration there goes forth to our near neighbors the example of a righteous government, free from sordid motives of graft, personal aggrandizement, vendettaism and incompetent nepotism. Most far reaching in its influence—let me say this proudly though not boastfully—seldom has the world been furnished an object lesson more spectacular, more convincing, than that given it during the construction days of the Canal by our own great Gorgas.

It is inevitable that the leader of a successful campaign should be awarded the glory of the victory. Perhaps not always deserved, but in this case I am sure no injustice has been done to any man. General Gorgas had competent assistants; the foundation on which he builded was surely and truly laid by such men as Laveran, Ross, and the Reed commission, who too gave all they had and whose paths are marked with the hallowed blood of martyrs. But in leadership, in the ability to conquer opposition, in the determination to dare to follow the right path over all obstacles and against ignorant authority, and in personal magnetism that persuaded men to follow him, Gorgas excelled. Only a man of the type that led the Hebrews out of their captivity could have opened a path through the pestilential jungles of Panama, and in him was found a Moses. In him, South and Central America, and even Africa, found their prophet whose counsel taught them to battle with age old enemies and be free from the ravages of the unseen hosts of destruction.

I have said that already the names of three most prominently connected with the building of the Panama Canal have become a mighty tradition; of these, Roosevelt was admired and held high place; Goethals was respected—and feared; but Gorgas was loved by all men. And true it is that in an earlier age, more poetic perhaps, but less practical, when knowledge was handed down by word of mouth from generation to generation, rather than in written archives, he would have joined the immortals on Olympus or have furnished the hero for an Iliad, and men would have builded temples in his honor and worshipped him as a god who controlled pests and pestiences. Yet, even in this so called "practical" age, cannot we but admire the hero worship of the ancients, and believe that from the grave of a buried great mortal arose a spirit, and a tradition bearing his name, that attested to the fact that man is not wholly irresponsible clay but that every act of his lives forever, for good or for bad? And already is Panama full of visible evidences of reverence for the name of Gorgas.

From my home, high up on Ancon Hill, I view the house in which he lived—always pointed out to tourists; just beyond, a stately Cathedral is rising over the site of the little chapel whose cornerstone he laid, and where he worshipped, and frequently in the absence of a minister, held services on Sabbath days—himself a "lay reader" in the Episcopal Church. And the Cathedral has a "Gorgas Memorial Fund" to be devoted to placing therein a memorial of him when it is completed. Down the hill, past Ancon Hospital, winds the beautiful street bearing his name, flanked by a double row of truly majestic "royal palms". And still further beyond is the site of the Gorgas Institute of Tropical Research, a rocky point of land jutting out into Panama Bay, lovliest on the shores of the Pacific Ocean. On this spot the Republic of Panama will build a pillared temple to the memory of Gorgas. It will be equipped to perpetuate not only the name and fame of the man, but to carry on and on his teaching, his influence, his creed.

To this great work the peoples of all nations will be permitted to subscribe. About six million dollars is estimated as needed to endow it properly, and that this huge sum will be forthcoming few have doubts. Of course the bulk of it will come from the United States, where the General's services in peace and war were so well known and appreciated. We who served in the late war will welcome the opportunity to erect a befitting monument to our departed Chief.

Substantial support is also expected from South and Central America, for there too has his presence and work wrought wonders.

Radiating in all directions from the Canal, his influence has gone forth. The simple, yet, divine laws of cleanliness and health: Moses of old wrote them into his book of religious ceremonies, enjoining upon all men of faith to serve God by best serving themselves. And now, with the development of scientific knowledge, no longer content with, or impressed by, a mere dogmatic formula, there needs once more a Moses with radiant countenance and authoritative voice, to impress upon the consciousness and the consciences of mankind the still divine laws of health. A sanitary conscience—in nations, in officials, in every person—that indeed were a task for a teacher and prophet. To this goal should every agency for spreading the gospel of health aspire.

What do I mean by a "sanitary conscience"? Behold here a young woman of my former practice—bearing upon patient shoulders her share of the burden of a prosperous small farm—the drudgery of the house and kitchen, the chickens and the cows. A cold, a cough, a fever,—tuberculosis. And then—there was an intelligent and devoted husband—the farm sold and a small store bought, the husband behind the counter, the wife comfortably ensconced on the porch of the adjoining cottage. Fever and cough gone, appetite fine, weight increasing, physical signs improving—a joyful, hopeful family. There walks in on this home one day a town loafer, an idle, loquacious, boastful man. Advancing to the porch, he draws open his shirt front and says "Mrs. M., did you ever see a finer case of measles? Doc told me to get in bed, but a little thing like this don't bother me none." It didn't. He got well all right and was none the worse for his foolhardiness But Mrs. M.— No, she had never seen a finer case of measles, nor any other case up to that time. In a few weeks it was all over—the little shop was sold once more and the husband went back to the farm, alone. Need I explain further? This incident may be multipled indefinitely the world over; any man here can match it with similar tales. A "sanitary conscience" indeed is needed—and I have a wise friend who would literally imitate Moses and write it in the ritual of his church—in the baptismal service and the marriage ceremony of the Book of Common Prayer. May all power be unto him.

But pardon me if I seem to lay too much stress on the Gorgas influence. Of course there were others to whom I should do justice. One man could not do it all. From the Canal Zone have gone out many of those who saw it through to completion, and these, in Mexico, Ecuador, Peru, and elsewhere, have achieved noteworthy successes. Yellow fever is a thing of the past—or almost, at least, but one case having been reported from any of its known former strongholds for months past. In these countries too, Gorgas led the way.

Never shall I forget my last interview with the old General, as I saw him, broken in health but not in spirit, on his way to South America and thence to Africa, to renew and extend his fight against yellow fever. From that journey he did not return alive, and, Mr. Secretary, may I take this opportunity to say that the last words he spoke to me on that occasion were a message of affection to you. To you, whom—when the long gathering clouds of war had burst into such violence as the world had never seen, and strong men were needed everywhere—he himself chose as the man to go to that post where he had achieved his fame and whose needs he knew as no other man did.

Gentlemen, fellow Kentuckians, the Kentucky tradition upon the Isthmus is indeed a high one. Kentucky has furnished the Canal Zone with two Governors, a Chief Health Officer, and three diplomatic representatives of our nation (the present one our own Dr. South, past President of this body and long the head of our State Board of Health, as beloved in Panama as he is in his own state); physicians, judges, the Bishop of the Episcopal Church, the head of the largest shipping company, officers of high rank in Army and Navy, and scores of others in every department, these with their wives and families have carried with them from Kentucky, into this strip of an alien land, a distinguishing ability, courtesy, chivalry and hospitality that mark them among their fellow men.

Fellows of the American College of Surgeons, you who contemplate making the journey to South America next winter, as you pass through the Gateway from the Atlantic to the Pacific, to you the Canal Zone, and especially your fellow Kentuckians, will extend a warm welcome. I refer not to warmth of a torrid kind; our climate will surprise you. You will arrive in the dry season, tempered by the ever cooling trade winds, and from coming to going you will be comfortable in body, and equally in spirits (if you incline that way).

I have seen the program of your stay upon the Isthmus. All too short is the allotted time. I would that you might stay ten times as long; that you might see, not only the fruition of the dream of centuries—the shorter passage from Europe to Cathay, and all the marvels that are accomplished there—but that you might have also time for exploration over the scenes of some of the most interesting passages of early American history, following the footsteps of Columbus, of Balboa, of Pizarro, of Drake, of the freebooter Morgan, and other hosts of the most picturesque characters that ever played upon the stage of life. That you might tread upon the stones of the Cruces trail, the old Royal Highway that led from Panama to Porto Bello; stones laid by enslaved Indians smarting under the whips of Spanish masters; stones over which the gold of outraged Peru and murdered Incas passed from ocean to ocean, and having, through desperate adventures on the high seas, arrived in Europe, this blood stained gold again was used to pay for the shedding of blood on the battlefields of that continent; stones over which marched the demoniacal freebooters who sacked, pillaged and burned the stately city of old Panama two centuries and a half ago; stones upon which Drake fought and that are marked at every step by blood; that have seen every form of cruelty, rapacity and treachery—and now are being dug from their centuries old resting place for use in the construction of sanitary ditches. Aye, truly there are sermons in stones.

And the stones in old Panama—they too voice their sermon, using for a text the dreadful words of prophecy: "He that killeth with the sword must be killed with the sword." The oldest city on American soil, founded within a few years after the discovery, grown prosperous upon ill gotten gains, lulled into a fancied security behind a barrier of marsh and jungle, the fame of its opulence tempted bold men whose only virtue was bravery; and the sword fell. Out of the jungle and the swamps poured the bloodthirsty, gold mad, lusting buccaneers.

"And then a horror in the night,
And shots, and flames and cries,
And women fleeing in affright,
As men fought for their lives."

Ruins of massive towers, arches, foundations and cobbled streets tell of the magnificence of the old city, never rebuilt on that site. One can easily trace here the walls of the first hospital built on American soil.

Farther afield is a remnant of aboriginal American life—one spot in the New World where the supremacy of the white race is not acknowledged. Marked on the official maps, "Tierra de las Mulattas," the San Blas country knows no sovereign save one of its own blood; tribal laws and customs are as they were in the days before the white man came; today they remain undefiled by alien stock—no stranger may remain overnight in their country. In the name itself "Tierra de las Mulattas" is recognized a strange condition (perhaps not so strange to our posterity if portents read aright) for it is written in the feminine gender of the Spanish language—among the San Blas the woman reigns supreme; and a man, marrying a dusky belle, enters into the wife's home and family. So primitive are they that they bear no personal names. "Ikka nuka"? (What name?) one asks. "Nuka sule" (no name) is the reply, save in a few rare instances where a man has had contact with the outside world and he answers "Charley Robinson" or some other English name—never an Indian or a Spanish one.

Old forts there are to visit—with stone walls of prodigious strength for their days. San Lorenzo, Porto Bello, Nombre de Dios; do not their very names bring leaping into view Spanish galleons, steel clad adventurers, Phillip II, Drake, and all the other heroes of the days when England and Spain were ever at each others throats and purses? From bastion and embrasures lean the rusty cannon, their carriages long, long ago mouldered away. Great pyramids of iron shot lie nearby, left as they lay when the cannoneers fell or perhaps fled to the jungle to experience there a crueller death.

Passing by turbulent waters in front of Porto Bello, one sails over the very spot where lies Sir Frances Drake himself in his leaden casket—he falling and his followers retreating at the very moment that victory and fabulous wealth were in their grasp. Between pangs of inevitable mal de mer one peers into the lashing waves and fancies he sees the outlines of the coffin of the great hero of the Spanish Main.

Should one be inclined to still further adventure, he may go down the coast of Panama and seek the lost city of Acla, where Balboa, kindest and best of the Adelantados was beheaded, a victim of the jealously of his father-in-law, the cruel Pedrarias.

Of history, romance, adventure, sport (with gun or tackle, by land or sea) there is a plenty. But alas! You are busy men, on a serious mission, and to enjoy fully what Panama has to offer, you will need a long, long vacation.

I must now turn, however regretfully, from the romantic past to a brief picture of the present. The thing that strikes most forcibly every newcomer upon the Canal, is the assured ease and celerity with which the Canal is operated. A great ship steams into the bay, picks up a pilot, enters a lock, is raised from chamber to chamber, crosses Gatun lake, is lowered again, and emerges on the other side of the continent; all in the space of a few hours, and almost soundlessly. Not a voice is raised in command; no one rushes distractedly about; smoothly driven electric machinery operates without clangor. System, training, experience, efficiency all developed to the nth degree. And this is typical of the Canal admisistration throughout.

Ancon Hospital, beautiful, immaculate, restful, with all modern appliances, staffed by physicians of skill and reputation, is a model institution whose fame attracts the sick from far countries. The outlying dispensaries, all manned by Government physicians, act as clearing stations, giving first aid, treating minor cases, detecting contagious diseases in their incipiency and preventing their spread. Two men from your Association are now engaged in this work, Dr. Grider of Warren County and Dr. Keene of Cumberland County, and well do they uphold the finest tradition of the well beloved family physician.

Of sanitation—the field work—upon the Isthmus, so much has been written, and so ably has the story been told, that there needs but little for me to dwell upon it. Our chief present aim is to keep up the standard that our predecessors placed on so high a plane. Well indeed did the Special Panama Canal Commission, appointed last year by the Secretary of War to investigate the operation of the Canal, say of the work of the Health Department:

"The work of these divisions (hospitals, sanitation and quarantine) is done in a splendid manner and the results obtained are beyond criticism, unless it be that the work is too thoroughly done. Ancon Hospital, which is the principal hospital of the Zone, is one of the most perfect and well appointed hospitals that has came within the observation of the Commission. The work of this service (sanitation) is beyond criticism so far as the thoroughness and the quality of the work is concerned. We know of no city in the United States that is as clean as Panama, nor where the flies and mosquitoes are so scarce. The measure of this is the markets, which are unscreened and in which food is openly exposed for sale and yet practically no flies exist."

High praise, this, from a group of men who, it truly seems, were selected "To bury Caesar, not to praise him". Unfortunately, this Commission (composed of a Brigadier General of the Army, a Captain of the Navy, and two "business' men) added these words to their report:

"It is recommended that the amounts expended for sanitation be greatly reduced, and if as a result the sick and death rates from malaria rises above the average in 20 of the largest cities of the United States, the sanitary preautions may be increased"

Too thoroughly done! too clean! too sanitary—let 'em die! (At least that is the interpretation placed upon it by most of those who read the report.) Oh Reform, what crimes are committed in thy name!

A storm of protest rocked the Isthmus, its violence being felt even in the States. Labor unions appealed to their brothers back home. The great newspapers of the country wrote scathing editorials; and as the story traveled it grew to a Frankenstein monster, threatening to disrupt the Canal organization. Fortunately, better counsel prevailed. Higher authority ruled that, instead of their amazing recommendation, there should be substituted the following more humane words:

"The amounts expended for sanitation in the Zone shall be reduced as much as possible consistent with maintaining the necessary sanitary precautions requisite for the preservation of the health of American employees in tropical service," which is the policy pursued by the Health Department for some years past.

Economy is and has been the watchword of the present administration. No insidious reflection upon our predecessors is intended. They worked on a brand new problem, in a virgin country, under the greatest stress; there was neither time nor opportunity for the nice consideration of refinement of methods. The dirt was flying, rocks crumbling under great blasts, mountains dividing; dredges sucked mud and water from beneath their bows and pumped it over the lowlands; the face of nature changed daily. Pestilence lurked at every step and hospital and funeral cars were on every train. The Panama Canal was not built by "standardized" methods.

But with its completion there was opportunity for standardization. Methods that bore tests of time and experience were retained, others were discarded. In sanitation, the magic wrought by spade, by concrete, by oil (this latter in ever lessening quantities) and, above all, by the tireless, unquenchable enthusiasm of the organization, has been apparent. The tides now ebb and flow through narrow ditches, draining meadows that once were vast swamps. Open ditches, requiring ceaseless vigilence and labor, have given place to subsoil rock and tile drains; the jungle has been cleared away from around towns, and fruitful gardens are taking its place. Screens on every home; a perfect water supply; garbage disposd of by burning on one side of the Isthmus, by burying to reclaim low swampy ground on the other; every new building made rat-proof (with plague infested countries on all sides of us this is a prime necessity); the debris of a gigantic construction job finally cleared up; all these things done for permanency, now give us a tremendous advantage over earlier days. From the 50 sanitary inspectors of those days, we have retained but 10, and these, we believe, the best. Sanitary laboring forces have been reduced from thousands to a few hundreds (they have been reduced by ½ in the past three years). Economy on a large scale has been effected; every dollar is well considered before its expenditure is authorized; but no vital element of sanitation has been sacrificed. The malaria record—our chief concern since yellow fever disappeared in 1905, has shown a progressive improvement, the past year the best of all. Gentlemen, when you come to Panama you need have no fear for your health, provided you do not wantonly expose yourselves in districts beyond the sphere of American endeavor.

Who can measure the vastness of little things? Or who, a bare generation ago, would have predicted that the success or failure of building the Panama Canal depended as much upon a knowledge of the life and habits of one of the tiniest of insects as upon the skill of the engineer in using giant forces and machines? And the smallest fact regarding that insect's life and habits frequently assumes an economic value far beyond merely gratifying the scientific curiosity of an entomologist. A world famous sanitarian has said that sanitation requires as infinite attention to detail as surgical asepsis. That is literally true—and just as a hospital with a weak link in its chain of technique will have a high operating room mortality, so will a health department produce statistics that unerringly show the measure of those who are responsible for its results.

The habits of mosquitoes have been studied; are being studied with the most minute scrutiny. Not all mosquitoes can carry malaria, nor yellow fever, nor dengue, nor filaria. Not all of the anopheles variety can carry malaria—and of those that can not all are of economic importance in a community. For instance, in Panama the albimanus-tarsimaculata group is our most potent enemy; breeding nearly always in fresh or slightly brackish but clean, quiet water, where sufficient sunlight can penetrate to cause algae (the favorite larval food) to grow; flying long distances; persistently seeking human society; spending hours searching for an opening through screens; it alone merits all our vast endeavor to make the Canal Zone free from malaria.

Another anopheles, so similar in appearance that only a trained eye can tell the difference, can be experimentally infected with malaria, but this one rather shuns mankind and seldom penetrates the house in search of a victim.

A third one, still very similar to the others, breeds only in densely shaded jungle streams and not in the sunlight; and though bearing the approbrious name of "malefactor", is not known to carry any disease nor to have been experimentally infected. A zealous, but injudicious, inspector, finding large areas breeding these in the jungle, may not only waste thousands of dollars of precious funds on clearing and drainage, but in so doing may change conditions so that this harmless mosquito disappears and its place is taken by the really dangerous variety. A properly trained man will know when to let well enough alone.

The life of a field sanitarian in the tropics is not one of ease. For eight months the rains come daily—sometimes all day, but usually alternating with hot sunshine. To him, wading for hours through muck and mud and high, dense vegetation, in a steamy atmosphere, bending, dipping, searching, planning, the rain when it comes is frequently a welcome, cooling relief. Negro laborers spread oil, cut rank vegetation, and clean ditches. Hardly are the areas gone when it must be done all over again. Especially trained negroes search ever for newly developed trouble spots. Every malaria case is studied as to its probable source of infection. Houses are searched for the presence of mosquitoes and, these being identified, the breeding places are sought for and eliminated. Eternal vigilence is the price of safety and an amazingly swift retribution would follow were the work to slacken or supervision relax. A very few months would serve to restore the Isthmus to its old status of the pest hole of the world.

In December the rains cease and the four months dry season begins. No cooler, for there is more sunshine—but now a continuous wind blows across the isthmus, keeping one comfortable enough. The trees drop their leaves, grass and jungle turn brown, and forest fires start; streams and swamps dry up and the parched ground cracks wide open. In this season the permanent work of sanitation is done. Ditches dug or planned during the wet season are tiled; fills are made; and much of the expensive maintenance work of previous seasons is made unnecessary for coming years.

It was once the rule on the Zone for the health department to call upon the engineering department for all its permanent construction, but in recent years this has been changed and the health department now does all its own surveying, mapping, planning and construction, with results that are unquestionably better and cheaper. I do not intend this as a reflection on the engineering profession, but without a precise knowledge of all the factors that enter into the control of mosquito breeding it is impossible to secure the maximum effect at the least expense.

In addition to the field work for the prevention of mosquitoes, an intensive campaign against malaria carriers is enforced. Every case is diagnosed microscopically, and the administration of quinine is prohibited until the diagnosis is established. Every physician becomes an expert in the recognition of the plasmodia of the three forms of the disease. Following an infection of an employee or one of his family *must* take a thorough treatment to sterilize his blood. By Bass' method of administration ten grains of quinine sulphate each night for two months after discharge from the hospital excellent results are obtained, especially in sub-tertian malaria; recurrences, except in tertain malaria, are rare.

Rats, fleas, flies, ticks—all receive the same enthusiastic, minute study. Report evidences of a rat in your house or garage:—an inspector will call and, with the instinct of a ferret, search out and destroy the nesting place, perhaps in another building. Flies in a restaurant? They'll find 'em; breeding perhaps in a dead cat on a roof, or in the upper part of a grease-soaked broom that is used to scrub the kitchen floor, or in a newly manured flower bed. Every inspector accepts responsibility for what occur in his district, and seeks the cause, not an alibi.

Does it pay? The famous sanitarian I have just quoted estimates the potential malaria rate of the unsanitated isthmus at 300% that each inhabitant would have three attacks a year. The actual present rate is slightly above 1% for employees and many of these cases are contracted by unnecessary exposure in unsanitated districts, a risk the health department attempts to minimize by frequent warnings. The death rate in properly treated cases is practically *nil.* Blackwater fever, once terrible in its ravages, is almost unknown. Yellow fever has probably disappeared from the face of the world. Stop and think a moment of the extraordinary significance of that last sentence, you older men who remember the once almost world wide dread of the terrible "Yellow Jack". First Cuba, then, quickly following, Panama, and now Ecuador, Peru, Mexico, all the known endemic centers, freed from this plague—and at a comparatively small cost that a few of our large commercial shipping concerns could have borne and have written a balance on the profit side of the ledger, considering the effect on commerce alone.

Bubonic plague, hookworm, typhoid fever, tuberculosis, the dysenteries, pneumonias, influenza, venereal diseases, all known infections and their sequelae on heart, kidneys and mind, who can doubt that these too will follow? We have seen how an aroused world, united against a threatened tyranny, poured out its blood and wealth to preserve its freedom. Wars, tragic though they be, arousing mighty passions and filling cemeteries with the dead, loading nations with debts for future generations to pay (if ever they be paid), are yet as nothing compared with these heretofore almost unheeded enemies of mankind. Scan the vital statistics of a century; walk the streets of the slums; visit the asylums of the poor, the blind, the insane, or the penal institutions of your state; and then say who, think you, is your greatest enemy.

Only the proper leadership is needed one day again to arouse to united effort of incivilization. Here is a war in which may tellect and material resources the might of join every creed, every nation, every race; and, more than any war of conquest ever waged, will the spoils of victory pay the cost of armament, and no one will be the poorer. It will be one war that, having been won, will stay won—forever. There will be no disputing over the terms of peace, no jealousies lest one profit more than another. Each will automatically share alike, from the babe in the cradle to the aged, rich and poor, great and lowly. This is not a Utopian vision. The war has actually begun; already have the first skirmishes been fought and the weak points of the enemy are known. But we have seen that only by united effort is victory possible; and until there is a willing conscription, placing every man on the battle front, the enemy will have a stronghold in our midst.

There are even traitors amongst us. So called "schools" of medicine, and sects, founded on emotionalism, or on plain charlatanism and quackery, apparently flourish and lead men away from basic truths. But these are almost negligible—we may take the advice of the wise doctor of the law, "And now I say unto you, Refrain from these men and let them alone: for if this counsel or thi work be of men, it will come to nought:" Acts V; 38.)

Our profession has furnished and will continue to furnish the leaders; has up to now borne the brunt of the task. We have won to us the engineer and the architect, and many of the other great professions of law, divinity and journalism. There yet remains that task of educating and arousing the masses—they who furnish the sinew and the means of campaign. The great sanitarian of the future will be, not the field man, nor the laboratory worker, nor the builder, nor the law maker—but the Prophet—he who will write again into the two Great Commandments "Love God and thy Fellow Man"— their true significance, to serve the great Creator by keeping undefiled the work of his hands. An unclean spirit cannot inhabit a clean body, nor can an unclean body serve as a temple for a clean spirit.

But a word more. I can not close my address without remarking upon the absence from this gathering, for the first time in many years, of a well reuembered, well beloved face. His the kindliest smile; he the wisest in counsel, the keenest in debate, the most patient in argument, the most tireless in well doing. Past my present home there passes an endless procession of the gerat men of all lands—princes and peers, warriors, statesmen, scientists, and many others. But which of them loves his fellow man better, does more to make the world a fairer, better place, or has greater nobility of character bestowes no high sounding titles of peerage and presence, than he had? Our country man makes unto himself a name that distin- on its own men, nor are they neseccary. Each guishes him from all others; and the name of *Joseph N. McCormack* is entitled to pass into his family's and his country's history as one of the most honorable that a Kentuckian has borne. My own deep debt of gratitude to him I acknowledge, taking pride that I was numbered among those whom he honered with his friendship and confidence. To his son, I can say that the mantle of our phophet has fallen upon worthy shoulders, and that we are indeed fortunate to have one of the very blood of the master still to bear the torch and to lead the hosts.

ORIGINAL ARTICLES

THE DEAD LINE.*

By Chas. K. Beck, M. D., Louisville

There is a line in the state of health of every living creature, which if crossed cannot be recrossed to health; but progress must be made toward death.

For generations the profession has recognized the presence of this line, and it has been more or less clearly defined in the mind of each of us with regard to each occasion of illness that has come under our care or observation. We have tried to determine when individual patients have crossed it, or were about to cross it. We have on occasions even waxed prophetic, going so far sometimes as to recite to the family or friends the conduct of the patient as the end of life approached or recovery became established. Hence such expressions as, "If he lives beyond the turn of the night, recovery may be expected;" and hence the story which we have all heard repeated and enlarged upon by certain of the laity that all doctors had given him up, but that his great grandmother had applied a lamb's-wool poultice to the soles of his feet, and wonder of wonders he still lives. These things discredit us to some extent.

Let me be honest at the beginning of my paper and confide to you that I have nothing new to offer for your consideration. I write of this line because I feel that it is for the greater part, at least at present, a portion of our professional armamentarium subconsciously only. Subconsciously we all sense the approach to or the crossing of this line by our patients and subconsciously we give the best there is in us to prevent this crossing; but the line and its appraoches are not as clearly defined in many of our minds as they might be.

After some search of the literature I have been unable to find any discussion of the subject in this manner. It is considered by many authorities under such headings as prognosis, signs of death and surgical mortality; but no one, so far as I have been able to find, has attempted to define as a whole this great divide with its approaches and descent. I want to go further and discuss briefly some of the means and methods available to limit surgical mortality by guarding these approaches.

Briefly first let us consider the subject in its darkest phase, the signs of death or approaching death.

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As the continuation of life depends upon the proper performance of the functions of circulation, respiration, and innervation, the condition of these should be looked into first and then take into consideration faulty functioning of other organs. Death begins either in the nerve centers from improper control, or in the respiratory or circulatory organs themselves.

Cessation of respiration may be sudden or gradual. Sudden cessation is due to influences operating either within or without the respiratory organs. Occlusions, obstructions and paralyses resulting from trauma or disease are the former, while the latter include obstruction by foreign bodies or pressure and the action of poisonous gases. There are violent efforts at respiration, followed by unconsciousness with sometimes convulsions. The face becomes cyanotic and swollen and after a period, long or short, of muscular rigidity, relaxation follows and the heart stops gradually, sometimes several minutes after respiratory efforts have ceased. The gradual cessation of respiration is more frequently seen since it is usually the result of disease.

Cessation of circulation may be sudden or gradual. Sudden cessation may occur from shock, angina pectoris, syncope, etc. Gradual cessation is the result of disease or may be physiologic, as in senility. The cause of cessation of circulation may be in the heart itself, which may cease to function because of exhaustion from overwork or because of direct central impulses, as by a blow on the head or violent emotion, as joy, grief or fright. The patient turns pale, a cold sweat appears, he becomes dizzy, pupils dilate, vision dims, pulse becomes slow, irregular, flickers and is gone. If not quite so sudden there is great restlessness, labored breathing, muttering delirium, and sometimes convulsions.

Death from central paralyses causes failure of circulation or respiration. Disease and injuries of the brain, electrocution, some toxins, and narcotics impress both cerebral and spinal centers and may ultimately overcome respiration and circulation. If death is not instantaneous there is unconsciousness or coma. Reflexes are lost, respiration becomes stertorous, slows and stops. The pulse becomes irregular and weak. And death has come quietly or with a convulsion.

I presume no surgeon desires to operate when he is not reasonably certain that he can prolong life or relieve suffering thereby. Knowing that an operation usually prolongs life or relieves suffering in a given condition with which he has determined his patient is afflicted, he then faces the question as to whether his patient is in condition to survive. No matter what may be said to the contrary, a major operation with the necessary anesthesia is quite an insult to the organism. There must be a certain reserve store of vitality or the patient will succumb.

It becomes, therefore, the surgeon's duty or the duty of his coworkers, to examine into the condition of the vital stock.

THE RESPIRATORY STOCK

Both the irritation and congestion, however slight, of the lung tissues and the lowering of the patient's resistance to infection by operation, conspire to produce post-operative pneumonia and pulmonary tuberculosis as well as other pulmonary infections and affections. Some have claimed that inhalations of ether benefit patients with pulmonary tuberculosis. I have always doubted the truth of this claim. However, there is no doubt but that operations that are not absolutely imperative should not be done on the tuberculous, because resistance is lowered for the time being, and it is just this period of lowered resistance, however short it may usually be, that gives opportunity for extended invasions by the tubercle bacilli.

Of course no surgeon should attempt to operate on any patient suffering from any acute infection of the lungs, unless the operation was clearly an emergency or to relieve the condition present. Asthma per se is seldom a contraindication to either anesthesia or surgery.

Examination of the upper respiratory passages and careful cleansing of them and the mouth, just prior to operation, together with the administration of atropine to prevent increased secretion and consequent aspiration, has reduced post-operative pneumonia till it is now rarely seen.

CIRCULATORY STOCK

While today most physical conditions of the heart are not classed as contraindications to ether anesthesia or surgery, it is more important to guard this approach toward mortality by an accurate foreknowledge of the condition of this peculiarly innervated and important organ. We will not refuse operation with the necessary anesthesia—and anesthesia in heart disease should, in my opinion, be general for all major operations—simply because there is chronic, or even acute for that matter, inflammation of endo, myo, or peri-cardium. Of course, unless the operation is decidedly emergency or indicated to relieve the acute condition, the careful surgeon does not operate while the acute inflammation is present. The condition is one in which preoperative treatment pays big dividends in added recoveries. It is not, then, the presence of inflammatory conditions or sequelae following inflammation of the heart that causes us to hesitate; but the way the heart is behaving. If compensation is not established, or has been broken, then we think twice—we should think thrice—before we lead our patient to the table, for here again a little patience with preoperative treatment pays large dividends.

A large percentage of the already delightfully low mortality in tonsil operations is admittedly due to the anesthetic. I am of the opinion that practically all of this mortality can be eliminated if the surgeon or his associates would study carefully the condition of the heart, by auscultation, percussion, blood pressure observations, etc., during rest and following exercise. Mortality can be lowered just as much or more and just as sure in surgical conditions in general as in tonsils. Let us keep in mind that the effect of anesthesia and operation on the heart is not over when the patient regains consciousness following the operation. There are hours of elimination and days of recuperation that follow and tax the heart sometimes beyond its ability.

Let us also look into the condition of the blood vessels. Aneurysms are dangerous. Sometimes they rupture during the stage of excitement. Much of our mortality and prolonged hospitalization of the aged is due to inflexible blood vessels. "A man is as old as his arteries."

Just to listen to the heart and feel the pulse when the patient is on the table waiting for the anesthetist to begin, is neglect of a valuable means of warning of trouble or even death that might be forseen and forestalled.

The blood is an impotrant item in the circulatory stock. There are many methods of blood examination that are indicated specially in special conditions; but there are at least two things we would know about the blood prior to any and every operation. Their approximate determination is so simple that it is hard to conceive of a case when there could be excuse for not investigating hemoglobin and coagulability. Usually both may be brought near the normal by a little preoperative treatment, or, if emergency, treatment specially to increase coagulability may be begun coincident with operation instead of waiting till the patient is practically exsanguinated

It is sometimes believed that the heart, vessels, or blood is being damaged by the diseased part we wish to attack surgically. We have all seen focal infection in tonsil, sinus or tooth produce endocarditis and anemia. In such a case, in my opinion, as soon as heart and blood are in reasonably good condition the operation should be done, because a return to normal can hardly be expected till the cause is removed.

TAKING STOCK OF THE NERVOUS SYSTEM

Tumor, trauma or inflammation of the central nervous system may have already become serious enough to place the patient on the western side of the dead line when the surgeon is consulted; but some of the most brilliant surgery of the day is done on the brain. In the light of a generation or two ago, it would have been considered miraculous, and the laity has hardly ceased yet to consider it so.

What is the mental attitude of the patient who seeks surgical aid in his attempt to regain health? Has he postponed seeking operation till all other hope of cure is gone? Has he passed through the hands of numerous physicians each of whom he has discarded for another because operation was urged; tried all the patent medicines; paid tribute to all the cure faddists aand cults, and does he now come, tremblingly and fearfully, with many misgivings, hardly daring to hope to survive operation, much less to get well? If so, how shall we handle him? To properly do so requires the utmost in sympathy and tact.

To secure his confidence first and give him all the assurance that one conscientiously can, and be tactfully honest, I consider necessary. Crile (1) has shown by histologic, physiochemic and functional studies that "emotion, especially fear, is one of the most injurious of human experiences." In his excellent and elaborate study of the subject he has proven that there is exhaustion of nerve cells caused by fear—an exhaustion which becomes more serious and dangerous the longer the periods of fear and the oftener they are experienced. He has shown, too, that fear affects temperature, respiration, pulse and blood pressure, and that there is more or less complete muscular as well as nervous exhaustion. Cells of the liver and suprarenal capsule are markedly affected.

How long has this patient been fearing? What has been the effect on his brain cells, liver and suprarenals? Crile has shown that sleep is restorative to these organs. A little careful, painstaking treatment of our patient's mental state will make him a much more fit subject for operation.

But where are we going to apply these treatments? Undoubtedly the hospital which is to be the scene of the operation is the best place. But our hospitals are crowded all the year round and the nursing force is driven almost beyond ability to take care of the most serious post-operative and dangerously ill patients. Therefore there is a crying need for more hospitals and more nurses, so that these unfortunate exhausted patients may recuperate under kindly, sympathetic nursing and suggestive, hopeful treatment, and thus lessen mortality, reduce sequelae, and shorten post-operative hospitalization.

RENAL STOCK

In practically all hospitals now there is a routine examination of urine prior to operation. Not many years ago these examinations had to be specially ordered sent to some commercial laboratory and were therefore rather infrequently done. Hospitals now maintain their own laboratories and the work is done by skilled internes. If the urine is negative, it is quite a mark in the patient's favor; but suppose there is albumen and casts with renal cells or pus, sugar or blood. The condition of the patient's renal stock is not first class. We resort to renal function estimation in such a case. Finding the kidneys more or less or even markedly deficient in their function, the first thing that comes to the surgeon's mind is the question of time. Is it emergency and must the operation be done at once, or is there time to restock or improve the condition of the vital stock? Or is the kidney crippled by the morbid process for which operation is indicated? We all have seen focal infection in tonsil, sinus or tooth produce nephritis, as well as circulatory disturbances. In such a case we may find that the patient will not improve. Then to operate or not to operate is the question, and the surgeon must rely upon his judgment.

AGE

Age is not an absolute contra-indication to operation, although mortality increases, hospitalization is lengthened, and sequelae are more numerous each year after the prime.

A CONTRAST

I believe no mortal has any means now of knowing when the dead line is crossed in cancer. Therefore, early removal in operable cases should be practiced. How are we to handle our cancer patients mentally? The public is fairly well informed as to the outcome of cancer. Our cancer patients, if they are aware of the presence of cancer, already are more or less overcome by misgivings and fears. The mental state may already be impaired. What shall we say to them? We, ourselves, are very much in the dark as to what the outcome will be. Some of these patients become seemingly well and live many years in comfort and health and finally die of some other condition; some are considerably relieved and live in comparative or complete comfort for months or years, but finally succumb to a recurrence; and some are benefitted little if any. The consensus of opinion, as I read it today, is that in operable cases surgery offers more in the way of relief and cure of cancer than any other method of therapy. However this may be and however opinions may differ on this point, we are agreed that the results will fall under one of these three heads. We know this. Beyond this we know nothing. And notwithstanding the fact that fear, as has been shown, even fear of cancer, which to some is worse even than fear of death, is such an injurious experience, I think that as a rule we should be honest with our patients and tell them just this that we know. Along this line, Glaister (2) wrote an interesting article. I myself have had experiences paralleling his very closely. Our patients are not fools. Evasion on our part only stimulates evasion on their part, while frank discussion will be met with frankness, confidence, and cooperation. To quote Glaister: "We should regard death as being, like birth, a natural process; by so doing we shall escape the futile struggle, well known to every general practitioner, against death known to be both inevitable and desirable."

Face the facts with our patient; and, if it is to be death, it can come but once anyway. Therefore, let us make the "crossing of the bar" as little unpleasant physically, mentally and spiritually as possible, by our sympathy, kindliness and concern. To do this I think it necessary to ourselves banish the fear of death as a personal experience.

In contrast to the management mentally of cancer are our toxic goiter cases. Frazier (3) believes operation in very mild cases not urgent; and that change of occupation, care of tooth infection, removal of infected tonsils, etc., may produce improvement. "But even without improvement, if the condition remains stationary, operation remains one of choice, rather than of necessity." In all other operable cases he believes in immediate therapy.

In my opinion there is quite a contrast with reference to the dead line between goiter and cancer cases. In the first place the public knows less about goiter than about cancer. I consider this ignorance of hyperthyroidism in the patient's favor. In the second place the prognosis is usually more favorable—the mortality is not so high. Operative mortality is higher, but the operation past, the outlook is good. I therefore have taken cancer and hyperthyroidism as type conditions. In hyperthyroidism the surgeon desires and should secure the confidence and cooperation of his patient; but not by looking death in the face and listening to the rattling of his bones. This is a case for bouyancy of spirits, cheerfulness of expression, and confident expectancy of a successful result. The patient seldom comes ready for operation. There should be some days for observation and examination in the hospital. Besides the usual routine examinations prior to any operation, the surgeon desires to watch the basal metabolic rate for a few days. He knows rest in bed to be the best preparation he can give his patient prior to operation. Operation? He has nevar mentioned operation to his patient. To be sure, the patient's family knows that is what he has in mind, but the patient has never gotten an inkling of it. Daily the anesthetist, known to the patient as associate, comes and gives inhalations that quiet the nerves and in some mysterious way, not understood by her, is supposed to benefit her. Finally dressings to the neck have become necessary. She notices that her kneck is stiff and sore; but this lasts for only a few days, during which time she does not feel so well. But she soon begins to improve. The daily inhalations finally cease; and she is soon back home where after a time she is casually informed by a member of the family that the surgeon into whose hands she had intrusted more than she thought had stolen her goitre. If we could manage our toxic goiter cases this way I feel sure the mortality would not be so high.

I think, too, that if the removal of foci of infection sometimes benefits or completely relieves mild cases, improvement should follow the judicial removal of such foci in the graver ones. Many cases of hyperthyroidism might be prevented by not allowing foci to remain in the body.

The Dead Line?———We are boys again. It is recess time at the country school. Our books have been closed for the time being and we are rushing for the marble grounds beneath the big oaks. The four ring men and the middler are in place. One of the boys has drawn tau in the distance, and neares the ring a laughing, shouting youngster etches deeply in the hard packed earth the dead line.

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3. Frazier, C. H.: *An. Surg.*, Aug. 1920

DISCUSSION:

John H. Blackburn, Bowling Green: Dr. Beck has given us a paper this afternoon that is of material value to every man who is doing surgery. I think every conscientious surgeon in the habit of examining his patients carefully and of trying to prognosticate, in a measure, the probable outcome of any particular case. I have never seen any one present this matter in just the way Dr. Beck has done, and he is to be congratulated on the means by which he has sought to bring it to our attention. It is a real art in my opinion, which comes from experience to be enabled to tell the family, when we are presented face to face with a particular question, just what the probable outcome will be. If we are in the hospital, if we have our laboratory facilities at hand and are enabled to examine the urine, test the hemoglobin and find the coagulation time, and make a white count, we have a much better opportunity for properly evaluating the different systems of the body, taking stock, as it were, and in that way are enabled to give a fairly clear and definite prognosis of what the probable outcome will be. Our study of these factors of safety that exist in each particular system, and the proper evaluation of those factors of safety are very important in all of our work. This applies particularly to goiter surgery and certainly to prostatic surgery.

So far as I have been able to find, Pilcher was the one who first called attention to the fact that the mere existence of an enlarged prostate gland with an occasional or frequent obstruction of urine was not necessarily an indication for the removal of that gland, and he called attention to the different means at hand of taking blood pressure and cardio-vascular stock, particularly in conjunction with the renal stock, which consists not only in determining the relative quantity of albumin but the phthalein elimination, and along with this a consideration of the man's age and general condition. It was he who called attention to the fact that when these particular factors of safety were low in certain of these systems in doing a cystotostomy or drainage of the bladder, then those factors of safety that were low could be brought up. Those who are doing prostatic surgery are familiar with the immediate rise in the quantity of albumin, and the reduction for a day or two or six or eight days in the phthalein eliminated, and then a readjustment of these factors.

The one thing in particular that will help all of us in evaluating these different things is our experience, which enables us to see the patient as a whole, not to look at his prostate gland, not to look simply at his appendix. Of course, the appendix may have to be removed, or an abscess may have to be opened, as our friend Dr. Carpenter does it. While Dr. Carpenter's mortality was low, his mortality would have been lower if he had resorted to local anesthesia to help him in these extremely bad surgical risks.

The essayist is to be congratulated in calling attention in this manner to the fact that a man may have a so-called surgical condition, but we must not of necessity operate on the case. In my opinion it takes a great deal bigger and than to know when to operate.

Within the last two years I have had six cases of prostatic enlargement brought to me, and by what I consider the proper evaluation in these particular cases, I took stock of these different systems and refused to operate on these six cases. I told my friends that if I should operate and the results were unsuccessful, the people would say the patients went to Bowling Green and Dr. Blackburn killed them. If I did not operate and those patients died, it would be said, "The Lord giveth and the Lord taketh away." I would rather let the Lord get the credit than myself.

This subject is worthy of careful consideration and by paying attention to these matters, as suggested by Dr. Beck, we will all become better surgeons.

Chas. Beck, (closing): With all of our laboratory examinations, with all the things we can discover by our improved tests and technic and examinations, there still remain the personal judgment and the equation of the man who is going to do the work and cast the deciding vote. The patient sometimes casts that deciding vote, often we do not desire to assume that responsibility, as Dr. Blackburn has said. An appendix may need to be removed a gall-bladder drained, or a prostate or thyroid gland removed. Whatever the nature of the case, we want to view the patient as a whole and decide whether that patient has a chance to survive. If not, let the Lord get the credit of taking him.

Experimental Measles in Animals.—Blood from six patients with measles was inoculated by Nevin and Bittman into rabbits. The animals gave evidence of infection. Passage from one human case of measles was carried on through five rabbits, and a monkey inoculated with the blood of the fifth rabbit gave typical symptoms of measles. A monkey inoculated with pooled blood from two human cases of measles taken on the third day after the onset of the disease gave the characteristic symptoms of measles. Blood from cases other than measles when inoculated into rabbits failed to give evidence of infection.

A REPORT OF THE CAUSES OF BLINDNESS IN THE KENTUCKY SCHOOL FOR THE BLIND. *

By I. A. Lederman, Louisville.

It would be of interest and of ultimate benefit to ourselves and to the State, if on the program of our section meetings there should appear from time to time a survey of conditions, relating to the Blind of our State. This would obviously entail some difficulties and a great deal of labor. Included in such a report would naturally come a consideration of the pupils in the Kentucky School for the Blind, especially with reference to pathology and causes of blindness.

This group of blind children collected from every part of the State may be said to be fairly representative, in spite of the fact that they number less than fifty per cent of the total blind of a corresponding age. As the population of the school is constantly changing by reason of withdrawals and admissions, so figures may vary from year to year. But as this change averages only about ten per cent each year, I do not believe it sufficient to rob what statistics we may gather, of their value.

Let me say in passing that the Kentucky School for the Blind stands high in comparison to other institutions of like character. It has done and is doing a great work in uplifting these unfortunates from gloom and helplessness to a very fair degree of cheer and ability to get along in the world.

It is neither a hospital nor a home but essentially an institution for the education of the blind child.

The only requirements for admission are insufficient vision to attend school for seeing children and sufficient intelligence to be educated by Blind school methods.

Though some may have enough sight to find their way about there are none at the school who could obtain education elsewhere except at a similar institution. The age limits are six to twenty-one. My report is based on an examination of the 1921—1922 Class.

The total attendance of this class was one hundred and twenty-three. The average age was fifteen. Of the number fifty-four were girls, sixty-nine were boys. In the department for colored children sixteen were in attendance or about 13%. 45% of the enrollment came from the cities and towns, and 55% from the country districts.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Paducah, October 16, 1922.

It is not my intention to enter into detailed descriptions of cases, an intensive study of which would reveal many interesting features, but the object of this report is to place before you for the purpose of record a tabulation of diseases and anomalies with their causes, and a few brief comments.

The figures presented are subject to some inaccuracies in diagnosis, principally because of our inability to obtain reliable family and personal histories. Except in the cases of injury, the circumstances of which are usually vividly recalled by these children, their memory is vague and their knowledge valueless. The onset and course of the disease and the family history must be obtained from the parents 55% of whom reside in more or less inaccessible portions of the State. The inaccessibility and the ignorance of most of these people deprive us of this important aid in diagnosis and study of etiology. It is true that in the majority of the cases the diagnosis is only too evident. They are indelibly stamped with signs of exciting and contributory pathology, which in turn, suggest the etiology, yet in the remaining few we are at our wits end to render accurate judgment and in them our opinion is based on assumption.

Each child is examined upon admission to the school, the diagnosis recorded and the possibility of improving the vision carefully considered. Where the media are clear, or reasonably so and the vision better than light perception, refraction errors are searched for. If material improvement can be obtained, glasses are prescribed. While this is true in but a small proportion of cases, it is advisable if it but diminishes their helplessness. That it is appreciated by the children themselves is shown by the manner in which they prize and care for the glasses given them.

A few of our cases, notably, in the class of congenital cataracts and closed pupils might undoubtedly be benefitted by operation. Here we meet the serious obstacle of requiring consent of the parents before any operative procedure may be undertaken. Their pessimism and their horrow of the knife has held our hand in many cases when in our judgment surgery was indicated. One parent, when permission was asked, answered, "If God willed our child to be blind, no man should interfere."

I have tabulated the diseases and anomalies according to structures involved. Where they were multiple, they were placed, for the sake of simplicity in the class most important or seemingly the principle cause of blindness. Where different pathology existed in the two eyes, each eye was placed in the corresponding class. This was true of eighteen cases. In all other cases the same condition caused blindness in both eyes. You will note, therefore, that one hundred and forty one diseases and anomalies are represented in one hundred and twenty three individuals.

The structures are, Cornea, Pupil. Lens, Choroid, Retina, Optic Nerve, Eye-Ball.

CORNEA

	CASES
Corneal opacity	20
Corneal opacity with staphyloma of cornea	4
Staphyloma of cornea	3
Micro-cornea	1
Intestinal keratitis and choroidal disease	1
Total	32

PUPIL

Closed Pupil	3
Total	3

LENS

Congenital cataract, dislocated	1
Congenital cataract, dislocated	1
Congenital cataract and aniridia	2
Total	4

CHOROID

Choroidal changes, progressive myopia	1
Choroidal changes with coloboma of iris and choroid	1
Total	2

RETINA

Retinitis exudative	1
Detachment of retina	1
Retinal changes with pigmentation resembling retinitis pigmentosa	4
Retinal changes with corneal opacity	1
Retinal changes with congenital cataract	7
Retinal changes with atrophy optic nerve	3
Retinal changes with aniridia	1
Albinism	1
Total	42

OPTIC NERVE

Atrophy optic nerve	4
Atrophy optic nerve with corneal opacity	1
Total	5

EYE BALL

Symblepharon	1
Congenital anophthalmos	2
Bupthalmos	6
Phthisis Bulbi	11
Enucleation	9

Sympathetic Ophthalmia	4
Total	33
All Total	141

From the above groups, we find these percentages:

Corneal lesions	22.69%
Closed pupil	2.13%
Congenital cataract	17.02%
Choroidal disease	1.42%
Retinal changes	29.79%
Optic Nerve Atrophy	3.55%
Various affections, eyeball	23.40%

The scope of this report does not permit a thorough analysis of these conditions, many of which are of more than passing interest. The corneal opacities in the main consist of dense leucomata, central and extensive, several with leucoma adherens. None of these cases, either by reason of the great area of corneal involvement or the presence of complicating disease, are capable of improvment.

The class of closed pupils consists of exudates of such a character and are attended by such complications as to prelude the possibility of re-establishing a useful pupillary opening.

It is fair to assume that all or nearly all cases of congenital cataract at the school are attended by fundus lesions. They were classed to establish the presence or absence of ret-clear view of the fundus could not be obtained to establish the presence or absence of retinal choroidal or optic nerve disease. Some of these cases have quick light perception and where this is true, and where the field of light perception is good or only partially defective, I have advised discission of the lens. There are at present several children at the school in whom clear pupils have been obtained by discission of cataract. However the degree of improvement in vision is small and none could be transferred to a school for normally seeing children. After operation fundus changes were clearly seen. Yet the operation seems justifiable if we can but enable them better to see their way about.

The cases classed as retinal degeneration vary in reference to the ophthalmoscopic picture. They include, glandular, straited or mottled changes confined to or accentuated in the macular region, some with atrophy of the retinal tissue. Some were attended by small or moderate amount of pigment deposit, while four presented pigment of such a character and arrangement as to suggest retinitis pigmentosa. The absence of the usual history prevented a positive diagnosis.

Pallor of the optic nerve was generally observed and in three cases advanced atrophy of optic nerve accompanied the retinal change. The occurrenec of marked nystagmus was the rule, this rendering ophthalmoscopic examination both difficult and trying.

The optic nerve lesion in the class of optic nerve atrophy was identical in each case, being a total advanced atrophy, light perception being entirely lost.

In the class of eye-ball lesions, I have placed a case of total symlepharon, with destruction of cornea.

Of the enucleations, all were performed before admission to the school. There is no means of determining definitely the indication for this procedure, except from the history or to judge the probable reason by noting the condition of the remaining eye.

In the class of eye-ball lesions also, sympathetic ophthalmas were placed, they being far advanced cases and the patholigy in them involving the entire contents of the eye-ball. They constitute an interesting class of cases and a very sad one, since they are, or should be, preventable.

In the study of etiology these cases may be placed under six headings. They are in order of their frequency; Congenital causes, of which there are seventy-eight cases; Ophthalmia neonatorum, thirty-seven cases; Injury, fourteen cases; Syphilis, seven cases; Trachoma, three cases; and infectious diseases of childhood, of which there were only two cases.

Classified as to these various causes, we find the following table:—

Congenital causes:

Cataract	24
Retinal degeneration	27
Retinal changes and cataract	1
Retinal changes and corneal opacities	1
Retinal changes and atrophy of the optic nerve	3
Detachment of retina	1
Albinism	1
Choroido-retinal changes	1
Choroidal changes with high myopia	1
Closed pupils	2
Atrophy optic nerve	3
Buphthalmos	3
Anophthalmos	2
Phthisis Bulbi	6
Total	78

Ophthalmia Neonatorum:

Corneal opacities	19
Staphyloma cornea	3
Micro-cornea	1
Buphthalmos	3
Phthisis Bulbi	6
Enucleated	5
Total	37

Injury:

Corneal opacity	2

Closed pupil	1
Symblepharon	1
Phthisis Bulbi	2
Enucleated	4
Sympathetic Ophthalmia	4
Total	14
Syphilis:	
Intestinal keratitis	4
Retinal degeneration	2
Atrophy optic nerve	1
Total	7
Trachoma:	
Corneal opacity	3
Total	3
Infectious Diseases:	
Phthisis Bulbi	1
Atrophy optic nerve	1
Total	2

The percentage of these groups to the total number is as follows:—

Congenital causes	56.03%
Ophthalmic neonatorum	26.24%
Injury	9.22%
Syphilis	4.96%
Trachoma	2.13%
Infectious diseases	1.42%

Of more than ordinary interest is the incidence of congenital blindness in families and the similarity of pathology in the eyes of the same family. We find in:

The Fraim family, one case of retinal degeneration, two cases of retinal degeneration with pigmentation.

The Fugate family, three cases of congenital cataracts.

The Gaines family, two cases of congenital cataracts.

The LaFollette family, on case of retinal degeneration, one case of retinal degeneration with cataract.

The Lewis family, one case of retinal degeneration with aniridia two cases of phthisis bulbi.

The Mattingly family, two cases of congenital cataracts.

The Robb family, one case of congenital cataract with aniridia one case of chorio retinal changes with coloboma iris.

TThe Parker family, five cases of congenital cataracts.

The Schweers family, three cases retinal degeneration.

The Slone family, two cases of retinal degeneration and cataract.

The Wallace family, two cases of congenital cataract.

In these eleven families there are twenty-nine cases of blindness in whom twelve are due to congenital retinal changes, fifteen to congenital cataract, two to phthisis bulbi. In all but one family the changes in the various members are similar, the one exception being the incidence of two cases of phthisis bulbi and one of retinal degeneration in the Lewis family.

This group probably does not represent all of the family blindness occuring in the one hundred and twenty-three pupils of the School. A number of families, for reasons best known to themselves prefer that some of their blind children remain at home.

In considering the various causes of blindness we are not surprised to find more than 50% due to congenital influences. It means that the problem of the blind child will be with us for many years to come.

How many of these cases are primarily due to parental syphilis, I do not know, but it is a fact in a certain proportion of cases there is no doubt.

The causes of blindness which might have been prevented and to prevent which our efforts must never cease, represent 44% of the total. Of these, the number of ophthalmia neonatorum seems still unreasonably high, being 26% of the total, and 59% of the preventable, cases. Of the twenty-nine pupils who have been rendered blind as a result of ophthalmia neonatorum, the average age is fourteen years. This fact seems encouraging and I have no doubt the percentage will steadily decrease from year to year. The three cases of blindness from trachoma on the other hand give us what seems a very low percentage from this disease. The average age of these was nineteen.

With referenec to syphilis, 4.96%, there may be more cases at the school for the reason that only those in whom the presence of the disease was definitely proven, were included in this class.

In two cases attributed to infectious disease, a definite history was obtained, in one of whooping cough and measles, the other of cerebro-spinal meningitis. In both instances blindness followed immediately after subsidence of the disease. It is quite probable, therefore, that we are correct in assuming the etiology of these cases since the history of no other cause could be elicited.

It may be of interest to briefly analyze the class of injury cases, especially with reference to the mode of injury, since in these cases a definite history is possible. In the tables this class includes fourteen eyes, the subject of different pathology. There are in all, ten children, of the total of one hundred and twenty-three, who have been blinded by injuries.

Case 1, age 11, Hit in eye with hatchet, Six years of age. Sympathetic ophthalmia one year later.

Case 2, age 17, Dynamite explosion, both eyes injured in same accident.
Case 3, age 20, Knife wound, right eye, when nine years old. Sympathetic ophthalmia, one year later.
Case 4, age 16, Rifle bullet passed through both eyes.
Case 5, age 14, Knife wound, right eye, six years age. Sympathetic ophthalmia, one year later.
Case 6, age 9, Dynamite explosion one year ago, lost both eyes and right arm
Case 7, age 10, Pointed shears penetrated right eye. Sympathetic ophthalmia one year later.
Case 8, age 14, Lime burn both eyes.
Case 9, age 18, Struck in right eye with stone ten years age. Shot in left eye by 22 bullet four years ago.
Case 10, age 15, Shot in right eye with bullet from B. B. gun four years ago. Left eye injured in dynamite explosion two years ago.

Of twenty eyes made blind through injury four were effected by sympathetic ophthalmia, in the remaining sixteen the blindness being directly due to trauma. In four instances perforating wounds of the eye ball occurred from sharp instruments, namely, shears, knife, hatchet, an equal number were perforated by rifle bullets, five were injured in dynamite explosions, two by lime-burns, and one was struck with a stone.

The circumstances under which these injuries were inflected, as related by the children themselves, demonstrated that they were accidental, that some were due to carelessness, and that all could have been prevented by the exercise of a little care.

Thermal Death Point of B. Botulinus Spores.—The thermal death point of the spores of B. botulinus in the juices of thirty-six varieties of canned food on the American market has been determined by Weiss. The thermal death point varies with the hydrogen-ion concentration of the particular food in question. The thermal death point also depends on the consistency of the particular food, the more fluid products requiring a shorter period of exposure at a given temperature than the less fluid ones. The thermal death point is also influenced by the presence and concentration of syrup. The heavier the syrup, the longer the period of exposure required at any one temperature.

CONGENITAL SYPHILIS OF THE NERVOUS SYSTEM. *

By Frederick G. Speidel, Louisville.

Incidence of Congenital Syphilis.

Great difficulties are experienced in making even an approximate estimation of the incidence of congenital syphilis or of the mortality therefrom in any community. The morbidity and mortality are undoubtedly much greater than our vital statistics would indicate, due no doubt to the factor of secrecy which operates every where in connection with this disease. The terminating complication, be it pneumonia, dysentery or other superimposed infection is usually given as the cause of death and indeed, even the pathologist would often experience great difficulty in proving that in a given case congenital syphilis was the actual cause of death.

The most reliable estimates are those based on reports from the large children's clinics and Jean, from a review of such literateure, concludes that from 5 to 6 per cent of the living anfants o fthe poorer class in this country have syphilis. The incidence among older children is slower (from 2 to 3 per cent) due to the higher death rate among syphilitic infants.

HEREDITARY TRANSMISSION

That syphilis is transmitted from the mother to the child sometime between conception and birth, is the generally accepted view, and since the wide spread application of the Wassermann reaction the elaborate doctrines of Colles and Profeta may be mentioned merely as examples of exploded and discarded beliefs. These doctrines were based on the observation of clinical phenomena alone. It has been shown recently, that for rabbits at least the clinical reaction to inoculations of spirochetes at the time of conception differs markedly from that of other animals. This difference extends through the period of pregnancy and well into the period of lactation. The defensive mechanism of pregnant animals is capable of opposing a resistance to syphilis at the time of conception, such that little or no clinical sign of infection appears.

These experimental facts apparently account in some measure for the conclusions drawn in the absence of Wassermann reactions by Colles and Profeta.

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*Read before the Jefferson County Medical Society.

SYPHILIS OF THE CENTRAL NERVOUS SYSTEM

Congenital syphilis is like acquired syphilis in its manifestations and when it affects the nervous system of a child, almost any neurologic condition may be simulated just as is the case in an adult, with the additional possibility of arrest of brain development.

Tabes dorsalis is quite rare as a result of congenital syphilis and is characterized by an insidious onset, lengthy and even latent course, frequently of optic atrophy and incontinence of urine; and the relative rarity of such phenomena as ataxia, girdle sensations and lightening pains. The large immobile irregular pupil is more frequent with juvenile tabetics in contrast to the myosis and Argyll-Robertson pupil of adult patients[3]. The average age of onset juvenile tabes is fifteen years, a period equal to that between the primary lesion and the tabetic manifestations in the adult.

Paresis, though not common in hereditary syphilis is more frequent than tabes, the estimated ratio being 10 to 1. As in adults the treatment of this condition is disappointing.

The course is shorter and remissions are rare.

By far the largest group is composed of those children who suffer from diffuse cerebral or ceerbrospinal syphilis. Hemiplegia, hemianaesthesia, aphasia, hemianopsia and other evidences of local vascular lesions characterize this affection. In addition, there are often symptoms pointing to a syphilitic basilar meningitis such as headache, mental hebetude, eye muscle paralysis, etc. and the usual clinical picture is such as could only be caused by a multiplicity of lesions[4]. Change in character and mental deficiency are important symptoms usually noticed in children over 2 or 3 years of age.

Relative to cranial nerve involvement it is stated that the frequency with which they are affected is in the following order: Acoustic, optic, oculomotor, trochlear, trigmeninal, abducent, and facial.

In all probability the central nervous system, in hereditary cases is infected during intrauterine life; so that the only possible prophylaxis against such a complication is the general one of treatment of the mother before or during pregnancy.

MODE OF ONSET

The onset of symptoms pointing to hereditary involvement of the central nervous system may be insidious, as is usually the case in tabes and paresis or it may be sudden. In a number of reported cases such symptoms have been precipitated by acute infections such as measles, pneumonia, and influenza, and in such cases puzzling clinical pictures are presented.

PATHOLOGY AND LABORATORY FINDINGS

The pathology of hereditary neurosyphilis differs in but few essentials from that of acquired neurosyphilis. The lesions of tabes and paresis in the child are the same as in the adult. In diffuse cerebral syphilis the smaller arteries and arterioles are involved, a predilection site being at the base of the brain where a gummatous arteritis with arachnoiditis is responsible for many of the presenting symptoms. The early lesions consist of focal infiltrations of lymphocytes and plasma cells. These infiltrations are perivascular, are sometimes associated with proliferative changes in the vessel walls, and represent the local reaction to the presence of spirochetes. These areas may proceed to local necrosis and gumma formation depending on the degree to which terminal arteries are occluded. Meningitis in the pathologic sense in a very common accompaniment of these changes.

The spinal fluid, under these conditions, contains a greatly increased number of cells an increased amount of globulin and presents a typical colloidal gold curve and a strongly positive Wassermann reaction. The blood Wassermann may be positive or negative depending on the age of the child, the kind and duration of treatment it has received, etc., just as in the adult.

TREATMENT OF CONGENITAL SYPHILIS

The treatment of syphilitic children has been in no sense standardized. There is recognizable however a tendency toward uniformity in the method of application of the remedial measures at our disposal. The general plan briefly stated, is as follows[6 7]: The child is given weekly intravenous injection of arsphenamine or neo-arsphenamine solution containing 10 mg. of the drug for each kilogram of body weight. After four of these doses there follows a rest period of four weeks after which they are resumed. These periods of alternating treatment and rest are continued for at least one year with infants and for at least two years with older children regardless of what the Wassermann reaction may be. In addition, mercury in treatment, and its administration is not interrupted for the arsphenamine therapy. Some clinicians prefer grey powder by mouth combined with weekly intramuscular injections of mercuric chloride (½ minim of 1 per cent solution for each kilogram of body weight.) Others prefer to give mercuric chloride or other mercury salt by mouth and reinforce it with inunctions of mercurial ointment. Such questions must often be decided by the character of the patient and the willingness or ability of the patient's mother to co-operate.

Although the arsenicals are used intramuscularly by some syphilographers, they undoubtedly cause a great deal of pain and there is always danger of necrosis and sloughing. The intrarectal administration has been found to be impractical for children on account of the pormptness with which it is expelled. This leaves only the intravenous route to be considered, and whether the median basilic, the external jugular or a scalp vein is used depends on the age of the child and the size, prominence and accessibility of such veins.

The only indication for the use of intraspinal treatment is in cases with positive findings in the cerebrospinal fluid where intensive intravenous arsphenamin and mercury treatment has been given a thorough trial and found ineffectual[8].

Dercum[9] is a strong supporter of "spinal drainage" in the treatment of neurosyphilis. He considers that the withdrawal of spinal fluid during general antisyphilitic treatment is itself a valuable procedure not only on account of the increased penetration of arsenic into the spinal fluid, but also on account of the hyperemia of the cord which it induces.

THE POSSIBILITIES OF CURE

It is the opinion of many syphilographers, based on a large experience, that syphilis may be cured permanently by the methods now in use. The earlier in the disease the treatment is begun the larger the percentage of apparent cures. The possibilities of cure in chreditary syphilis parallel those in acquired syphilis. Clinical cure is obtained with the same ease when the treatment is carried out along modern lines, and negative serology just as frequent.

Although a final judgment will be possible only when the patients become thirty, forty, or more years of age, it is already evident that the most serious consequences can be essentially attenuated or even a complete cure acomplished.

1. Jeans: *Am. J. Syphilis;* 3:114 (Jan.) 1919.
2. Brown and Pearce: *Am. J. Syphilis;* 4:593 (Oct.) 1920.
3. Parker: *Arch. Neurol. and Psychiat.;* 5:121 (Feb.) 1921.
4. Barker: *Am. J. Syphilis;* 1:149 (Jan.) 1917.
6. Jeans: *J. A. M. A.;* 76:167, 1921.
7. Jeans: *Med. Clin. N. Am.;* 4:895, 1920.
8. Kalisky and Straus: *Am. J. Syphilis;* 2:609 (Oct.) 1918.
9. Dercum: *Arch. Neurol. and Psychiat.;* 3:230 (Mar.) 1920.

PYELITIS IN CHILDREN.*

By J. F. DUNN, Arlington.

Pyelitis is an inflammation of the pelvis of the kidney. It is not a very common disease, and when present is often mistaken for other conditions. According to literature it is less common in children than in adults.

The causes of pyelitis may be summed up as follows:

1. Mechanical irritations—resulting from calculi, tumors, or animal parasites, the most common of which are colon bacilli. Babinsky maintains that these bacteria enter the kidneys through the three following channels, viz.: the circulation of the blood, the lymph channels, and the urethra. Gonococci and the pyogenic cocci are occasionally the exciting factors.

2. Acute Infectious Diseases, such as typhoid fever, smallpox, scarlatina, and tuberculosis. These diseases lead to the formation of infectious emboli which are carried through the general blood circulation and are often deposited in the kidneys thereby giving rise to pyelitis.

3. Extension upward of the inflammation from cystitis, urethritis, or ureteritis.

There are a few other agents that may occasionally produce this disease, such as retention of decomposed urine in the pelvis of the kidney, foreign bodies other than stone, and irritating diuretics, but the three above named classes cover most every case.

PATHOLOGY

The mucous membrane becomes red and swollen and is soon covered with muco-pus and desquamated epithelium. The urine is turbid and contains numerous pus cells and casts. Ecchymoses are often present. Sometimes the inflammation extends into the deeper structures of the kidney, giving rise to the condition known as pyelo-nephritis.

The symptoms of pyelitis are often misleading, in fact, so much so, that patients suffering with this malady have been treated for malarial fever, typhoid fever, "teething", and most every other disease in the curriculum, and in some cases the cause of the condition has been termed "idiopathic".

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*Read before the Carlisle County Medical Society.

Sometimes not a single symptom indicates the real seat of disease. The child will be irritable, with occasional febrile reactions, extreme pallor, and loss of appetite, reminding one of a general systemic infection instead of a local one. Then it is that quinine is often ordered and we wonder why we get no result from our treatment.

There is sometimes pain and tenderness over the region of the affected kidney. In the purulent form or pyelo-nephritis the fever may assume the typhoid type, or it may appear in the form of rigors, fevers, and sweats. Again, the patient may have convulsions, opisthotonos, and coma, resulting in death from the combined effects of urinary intoxication and septic infection.

As the symptoms of pyelitis are so varied and so misleading, it behooves us to be very careful in diagnosing all cases of fever in children. In my opinion the only certain way in which we can diagnose a case of pyelitis is by an examination of the urine both macroscopically and microscopically.

By macroscopic examination we find albumen, a turbid urine, sometimes blood, and hyperacidity. With the microscope we find pus cells in large amounts, renal casts, epithlical cells, and numberless microorganisms. Let me say with emphasis that in every case of fever in children where a diagnosis can not be made early, a microscopic examination of the urine should be made, and if we find pus cells and renal casts to combine with just a few general symptoms, although they may be slight, we may safely call it a case of pyelitis.

TREATMENT

As a rule the treatment is much easier than the diagnosis, however, the diagnosis having been made, the patient should be kept in bed, put on a milk diet, and large quantities of distilled water given by the mouth.

As to drugs—urotropin heads the list. This drug counteracts the influence of the infection by splitting off formaldehyde during its excretion through the kidneys, thereby acting as a local antiseptic as well as a general one. Next in order is salol, which is split up in the kidney into carbolic and salicylic acid and also acts as a powerful antiseptic. If the urine is too highly acid alkalies should be given.

It is sometimes necessary to irrigate the bladder, especially if there is a cystitis complicating the condition. This may be done with a boric acid solution, or a 1 to 2000 nitrate of silver solution being followed by a 1% solution of sodium chloride.

Violent pain may necessitate the use of hot applications and narcotics. Nausea and vomiting may be combatted with cracked ice.

The nourishment should consist of an abundance of liquids such as milk, whey, and alkaline waters. Foods that are rich in salts or spices should be avoided.

The child should be kept in bed till the acute symptoms—fever and pain have subsided and then should be watched very closely guarding him against bodily exertion or sudden exposures to cold or dampness.

DIARRHEA IN CHILDREN.*

By Wm. L. Mosby, Bardwell.

Any disturbance of the alimentary track associated with frequent, loose bowel movements will come within the meaning of my paper and will be considered in children under two years of age.

The importance of this infantile disease should be more appreciated when we consider the mortality during the hot months in the country as well as the cities and more especially in inland centers of population where the heat is more continuous and nights do not bring relief.

Holt gives a table of mortality statistics for a 5 year period in the city of New York that is of interest.

Measles all ages	3378
Scarlet fever, all ages	4152
Pertussis, all ages	2000
Typhoid fever, all ages	3523
Diphtheria, all ages	10277
Total deaths for 5 years	23330
Diarrhea, under 2 yrs. of age	26563

A very impressive argument as to the seriousness of infantile diarrhea problem and its solution.

Age predisposes, as the greatest morbidity and correspondingly largest mortality occurs the first year of life and a marked decline both in frequency and in severity is observed the second year.

Susceptibility is probably due to feeble or incomplete anatomic development with corresponding feeble digestive power rendering the gastro intestinal track sensitive and highly susceptible to irritation and functional disturbances, these developmental faults or conditions are gradually overcome as the child grows older.

Debilitating conditions either hereditary or acquired invite diarrhea by lowering digestive function, so will an injury to the intestinal canal either mechanical or chemical including the infections.

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*Read before the Carlisle County Medical Society.

Lowered vitality from any cause such as marasmus, malnutrition from various causes favor its production.

Heat is closely connected with the morbidity and mortality of this frequent disease as the greatest number of cases occur during the hottest month of the year—July—and the lowest number during the winter.

Heat "per se" is doubtless responsible for many deaths from this disease during the hot months as young life seems predisposed to its depressing, debilitating effect, and this is more pronounced in crowded homes, where atmosphere air is stagnant, ventilation bad and surroundings unsanitary or unhygienic, such as exists in many congested apartments of the cities of our country.

Poverty, ignorance and indifference to child welfare are responsible for a large number of cases and mortality from diarrhae, and this when combined with bad environment and improper feeding will certainly bring bad results with a heavy mortality as a penalty.

There is unquestionably an etiologic connection between artificial feeding and diarrhea.

Extreme temperatures of summer have a depressing effect on both the nervous system and the digestive apparatus, so functional disturbance and diarrhea are invited, especially when food contamination or putrefactive or fermentative changes are present which is also favored by high degrees of temperature. So it is that heat has a direct as well as an indirect action in the production of diarrhea in children.

Artificial feeding has an etiologic relation to this disease as it is estimated that less than 5% of the severer cases occur among those raised on the breast and a correspondingly small per cent of mortality in the exclusive breast babies.

Impure milk is a conspicuous cause of diarrhea and is a possible fact that the careful methods of inspection of milk supplies in cities insure a better or a less contaminated milk than the averege conditions in country will afford, with lax or no health protection, or inspection methods available, but infection and contamination and fermentation from normally contained bacteria after certification is easy and frequent where want of ice or pasturization is neglected by most of the ignorant, indifferent people without proper training and control.

Pasturization is a prophylactic measure of value during the hot months of summer.

Mild form of diarrhea are characterized and may combine gastric symptoms of a mild type with increased loose bowel movement, especially is the latter true in older children but in younger children gastric disturbance will usually precede increased bowel movements.

Colicky pain is a common symptom with tympanites and restlessness, causing baby to fret or cry, moving feet and drawing up legs and these symptoms will be accompanied by moreor less general prostration and often nervous disturbance possibly convulsions, in the nervous child.

Stools will be increased to 4 to 12 a day, first will be fecal and later yellowish green and finally become grass green and in many cases we will find undigested curds of milk. The stools are usually acid a point of significance and of therapeutic value. This form will usually last only a few days under favorable conditions or the severer type may follow the mild or it may be severe from the beginning in which event the clinical picture will be different.

In this form the temperature will quickly rise to 102° or 104° the skin is hot and dry, and the little sufferer is very restless with intense thirst and frequent vomiting. There is great prostration which is shown by feeble pulse, sunken eyes and symptoms of profound shock may be present or we may have convulsions early in onset of case.

After a few days nausea and vomiting may subside and a diarrhea develop, stools are foul and offensive attended with considerable gas formation and later mucus will be present and bowel movements will approximate six or eight up to twenty a day.

Under favorable management these symptoms will gradually subside in 5 or 6 days and a return to normal occur but where environments and conditions are not so favorable a more serious condition may quickly develop from the gravity of the attack or from complication present.

The diagnosis in these cases may require some delay as we will have to differentiate between the exanthemata, pneumonia, meningitis and possibly other acute disease. Cause and effect must be considered but after the predominating symptoms—diarrhea—is in evidence, and absence of certain other abdominal conditions is differentiated we may arrive at a correct diagnosis by a process of exclusion and inclusion.

The prognosis is modified by previous health, heat, environment of each individual case as to elements of food, neglect and complication.

The proverbial "ounce of prevention is

worth a pound of cure" applies here with quite an exaggerated degree of truthfulness, as infantile life responds wonderfully to good care and proper feeding but neglect along either line exacts a very heavy mortality.

Prophylaxis assumes a knowledge of etiology and on this depends our successful management, in the more serious cases.

In the country the question of air and hynienic surrounding is not so difficult as in the city yet quite as important and should receive attention.

Mothers milk is always the food of choice unless positively contra-indicated by disease in the mother which exists sufficient to render it unsuitable.

The danger from other foods is not so much the food alone but its adaptation, how kept and handled and how given to infant, quantity and intervals of feeding, etc. Babies require less food in hot weather and more water, this can be accomplished by diluting the food and lengthening the intervals of feeding.

In the treatment of diarrhea, dietetic management is of first importance, food should be withheld for 24 hours and where nausea or vomiting is present it should not be given for a longer time but instead boiled water, rice water or barley water may be used to a better advantage and if these are refused absolute rest to the stomach may do more good than food or water to hasten recovery.

The quantity of food at one time should be reduced to one fourth or less, according to the severity of the case and food intervals should not be closer than four hours but other fluids may be given between feedings. In non breast babies the cereal waters mentioned may be used or farinaceaus foods, animal broths, bouillon made of veal, chicken, mutton or beef given instead or alternating. Sweetmilk and sugars increase fermentation and overtax digestion, enfeebled be disease so their use is contra-indicated. Buttermilk and protein milk is preferable after feeding is resumed being diluted and restricted according to condition present in each case. Cows' milk, containing more phosphoric acid than mothers milk tends to increase the acidosis associated with this disease and should be considered in the treatment and indications should be met by the use of bicarbonate either of soda or potassium, especially is this necessary where cows' milk is the principal food.

Medically we should empty the stomach and bowels if nature has not already accomplished this work by the use of castor oil or if gastric disturbance is more marked I prefer 1-10 to 1-4 grain of calomel with soda given from four to six doses one-half to one hour apart followed with an enema if much nausea and if not followed with oil, but we find the colonic flush relieves the tympany, empties the bowels and relieves vomiting when present.

Soda added to the colonic flush will have some effect on the tendency to acidosis and a portion of the solution may remain in bowel after irrigation.

Bismuth subcarbonate or subnitrate are valuable remedies where the stools are frequent and we may well combine other intestinal antiseptics with the bismuth. If the pain is intolerable or adds distress we may use paregoric in 10 drop doses for an infant six months old or we may give the deodorized tr. opium in one drop doses p. r. n. this later I prefer with the irrigating solution if much mucus and pain is present but in larger portions and if much mucus and blood, alum or oat meal gruel liquid enough to flow easily through the tube is valuable.

Remedies are legion but their usefulness is limited to their special indication which should be judiciously met as indications arise.

Acidosis should be borne in mind and prevented where possible and promptly and properly treated when it develops by the use of bicarbonate of soda per rectum, per orum by hypodermclysis, intravenous, or intramuscularly as the indication can be best accomplished, and its therapeutic value is increased by the addition of a 3% glucose, giving 10 to 30 grains of the bicarbonate of soda.

Acidosis is favered by faulty elimination by kidneys and lungs so we should endeavor to keep up elimination by suitable diuretics and the avoidance of the excessive administration of opiates as they reduce the elimination of CO_2 by the lungs and retard elimination by the kidneys and further disturb digestion in young children as their idiosyncrasy is against its tolerance.

We council caution in its use here as a valuable remedy fraught with danger.

Deviation of Complement Test for Tuberculosis.— Grumbach has been studying at the Pasteur Institute at Paris the reaction of fixation with Besredka's new antigen in diagnosis of tuberculosis. This test is proving valuable in revealing cases in which bacteriologic examination is still negative. A positive reaction often precedes all other manifestation of tuberculosis. The fiding swith the intradermal auto-urine test invariably coincided with those of the deviation of compliment test.

THE LACERATED PERINEUM.*

By E. S. Allen, Louisville.

Complete prolapse of the entire pelvic content is the end result of a perineal tear.

Retroflexion is the first degree of procidentia.

A prolapse may occur with an intact perineum, but in a deformed pelvis where the angles of the deflecting planes are modified.

The function of the levator ani is not as essentially that of muscular intra abdominal as deflecting plane radiating intra abdominal pressure.

A deformed pelvis in which pressure is not properly deflected will result in prolapse of pelvic content, for no muscle is able of its own textural strength to permanently withstand intra abdominal pressure.

The intact levator ani does not receive the direct impact of pressure from above, but forming a collar around the vagina and rectum pulls them to level with the pubic arch compresses the vagina into a narrow slit completely closing the pelvic outlet and elevating the anterior floor of the pelvis, thereby deflecting intra abdominal pressure toward the hollow of the sacrum.

A tear through the levator ani extending into or to the side of the perineal raphe interferes with or modifies the elevation and forward pull of the floor, permitting the force from above to strike direct over the point of least resistance, the uterus no longer delicately balanced forward on account of the slack that has taken place in the round ligaments falls backwards and the intra abdominal pressure which maintained the anterior position now forces it more and more into retroflexion, in the line of direct pressure with support gone from below, we have the first degree of uterine prolapse.

I do not intend to convey the idea that all retroflexed uteri will sooner or later prolapse for a great many conditions will cause retroflexion and a retroflexion may be normal for an individual, or a congenital condition and a retroflexed uterus is not necessarily accompanied by symptoms, but with a functionally deflected levator ani which means an abnormal deflective plane, the retroflexed uter- rectal wall in the formation of a cystocele. us is on the downward grade, dragging with it the bladder and rectum causing retroflexion, colpocele, cystocele, rectocele. procidentia.

Though it is possible to have retroflexion without the symptoms. I am sure that all cases of prolapse even of the first degree are subjects of pelvic discomfort, more pronounced in proportion to the degree of displacement.

As stated above the levator ani acts both as a deflecting plane and pelvic support. The entire abdominal cavity constitutes a compound deflecting chamber, presenting multiple planes that deflect pressure at various angles.

It is a fundamental law in that the direction of a given force impinging against a resistant plane becomes deflected in a given and definite direction. The same law establishes and maintains visceral equilibrium against the displacing force of gravity and intra abdominal pressure. But for the influence of deflecting planes every erect female would prolapse her abdominal contents into the pelvis and out through the vagina.

As a result of normal deflection a pressure of 80 in the abdominal cavity is reduced to 20 at the vaginal outlet. The deflecting planes disperse or deflect pressure in directions that tend to preserve the topographic stability of the pelvic contents.

The levator ani diminishes the force of pressure upon the pelvic organs by deflecting the direction of pressure and augments the resistance to the pressure by closing the utero vaginal angle and obstructs the pelvic outlet by compressing the vaginal canal.

Such is the function of the perineum and such the measure of its importance as a visceral support.

It follows then that the gravity of perineal lacerations is proportionate to the resulting impairment of its muscular element inducing a tendency to prolapse, not because any direct support to the visera is severed; but because the equilibrium of intrapelvic pressure is deranged and its expulsive force undeflected.

In a perineal laceration the levator ani retract widening the vaginal outlet with a resultant eversion and protrusion of the vaginal mucosa, the cleft gives vent to the anterior rectal wall in the formation of a systocele.

The vaginal floor thus deprived of its support and shortened to the extent of its laceration exposes the upper vaginal wall and leaves the bladder base unsupported. The entire vaginal canal with its superimposed viscera descends to a lower level. The prolapsed vaginal pouches with their hernial contents gradually drag the antiverted cervix toward the yielding outlet the utero-vaginal angle becomes widened, the uterus telescopes the vagina and the prolapse is complete. And only a victim can enumerate the symptom complex from the top of the head to the sole of the feet, both real and imaginary. They either have an incontinence or are unable to void unless the prolapsus is replaced.

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*Read before the Henry County Medical Society.

The point I wish to make is the difference between a retroflexed uterus with an intact perineum and a retroflexion with a functionally defective levator ani. The first is potentially negative. The latter is the beginning of a prolapse and a shortening of the round ligaments will not correct the tendency to prolapse nor will the uterus remain antiflexed very long unless the levator ani is repaired. I am sure that I have had retroflexed uteri to fall into the pelvis after a shorshortening of the round ligaments because I failed to recognize an impaired levator ani I might say just here that I believe that after the perineum is repaired that a shortening of the utero-sacral ligaments are as fundamental in holding the uterus in place as the round ligaments. Neither will hold with the perineum unrepaired. I would suggest that when ever the fundus of the uterus is found in the cul de sac with the cervix pointing forward that is should be determined whether or not the introitus vaginae is gaping for this alone is indicative of a functionally defective levator ani and when the vagina is agap with the patient in the lithotomy position unless there has been some pelvic inflammatory condition to fix the uterus or adnexa, the fundus will be found in the cul de sac, the cervix pointed forward, the bladder and rectum herniating into the vagina.

Retroversion without prolapse, resulting from levator impairment, is corrected by levator repair. Retroversion with descent of uterus should be corrected by levator repair plus shortening of round ligaments which can be done by vaginal route, if there is no other pelvic pathology. All adherent retroversion should be attacked through the abdominal route.

The muscular fascial elements located in the levator plane constitute the surgical objective point in perineorrhaphy.

Before denuding the seat of lesion, it is essential to locate the two levator shanks. each being palpable through the lateral vaginal walls, where they converge toward the perineal center. Contrary to a general impression the levator is more frequently hypertrophied than atrophied, owing to its augumented compensatory function, due to its malposition. Preliminary to the first step in perineorrhaphy any displacement of the uterus or bladder as well as pathological condition of the cervix, must be corrected, as to the method of muscular repair. The one essential, is approximation of muscles. Their outer borders should be mobilized along their entire length, to an extent permitting median approximation without tension Each suture is passed from side to side, not through, but entirely around both muscles, encircling them so as to secure the broadest possible surface contact under the vaginal floor. As the vaginal mucosa should be removed, a transverse wound is converted into a perpendicular slit, and the vaginal floor requires more mucosa after restoration than before. If any of the vaginal flap is trimmed off, the remaining mucosa or floor is too short to adapt itself in lining the posterior or descending surface of the intravaginal crest and span the hollow at its base, creating a dead space of variable depth and pathological potentialities. I believe most surgeons are agreed that a muscular approximation is essential to a physiologic perineum, that a cicatricial plug at the vaginal outlet, from mere fascial approximation, though it gives a more or less perfect cosmetic contour does not restore the all-essential physiological muscular element in pelvic support.

Obstructive retention at the vaginal outlet cannot permanently replace normal physiologic support and the aim in perineorrhaphy must be the restitution of such anatomic relations as to restore, as far as possible, physiological as well as mechanical support to the pelvic content. And probably there lies the cause why so few immediate repairs at the bedside, though apparently correcting the tear fail to support, for unless the levator is outlined and deliberately picked up and approximated, the perineal body is made up of fascia and areola tissue, and frequently just areola tissue and skin. I have within the past six months operated on six cases of complete uterine prolapse, in which the vagina with the entire pelvic content including the intestines were entirely extra vulva; due to an unrepaired perineum.

I will briefly refer to several of these cases. Mrs. D., age 50, weight over 200 lbs. mother of six children, youngest 15 years old, consulted me for complete uterine prolapse. When standing or straining, the bladder, rectum, uterus and entire vagina prolapsed. The cervix had become excoriated and was bleeding. There was a complete separation of levator ani muscle. The Watkins operation was performed, dissecting the bladder from the uterus, pushing it back and up, opening the peritoneal cavity and pulling fundus of uterus forward under the bladder and fixing it with No. 3 chromic cat gut sutures, passed through the tissue near the pubic arch and through the posterior wall of uterus near the fundus. The broad ligaments were brought forward and sutured in front of the cervix. A perineorrhaphy was done, separating the vaginal wall from the rectum high on the crest of the rectocele. Then the levators are brought to the mid line and sutured. It is a good idea to open the abdomen and shorten the utero-sacral ligament, in order to elevate the cervix and vagina. But this patient was so very fat that I thought best not to go above. She left the hospital in three weeks and is now well and comfortable.

Case 2. Mrs. S., age 60, weight 170, mother of five children, had complete perineal tear, prolapse, rectocele and cystocele, uterus could be forced entirely out, but did not remain external to vulva. The cystocele was repaired by dissecting bladder from uterus, pushing bladder well up, freeing the pubo-vesical ligaments or pillars of the bladder. After reflecting the vaginal flaps and pushing bladder well up, interrupted cat gut sutures were passed through on pillar, then through the uterus and other pillar and tied. An oval strip of vaginal mucosa was excised and wound closed. A perineorrhaphy was done. The abdomen was opened and the fundus uteri was pulled into abdominal wound and sutured with No. 3 chromic cat gut to the sheath of rectus muscle. This patient left the hospital in three weeks with complete relief.

Case 3. Age 69, youngest child 40 years old, has had prolapse uteri for 20 years. Had practically become a recluse on account of incessant incontinence of urine. Knew of two cases operated years ago for prolapse with a recurrence, so would never consent to operation until an excoriation and infection of cervix and vagina occasioned so much pain and discomfort from urine, she consented to anything that would give relief from pain. She was kept in hospital for two weeks combating the infection of cervix and vagina. The bladder was irrigated and a retention catheter for a few days, with argyrol instillations controlled the incontinence. This was the largest prolapse I have ever seen. The everted vagina with its hernia contents formed a mass larger than a grape fruit. The abdomen was opened, and uterus sutured to sheath of rectus muscles. The utero sacral ligaments shortened and cul de sac lessened by means of several No. 2 cat gut sutures corrigating the vagina at vagino-cervical junction. Abdomen was closed and cystocele repaired and a perineorrhaphy done.

I made it a rule to insert a cigarette drain in the vagina on patients operated for cystocele and rectocele, feeling that it drains out any oozing that might follow, eliminating a potential source of infection.

These patients are catheterized for three days, dipping the point of the catheter in argyrol before inserting in the bladder. One of the other cases of prolapse, a Watkins operation was done and the two others an anterior fixation of uterus to rectus fascia. As each of the patients was relieved of all symptoms and sufficient time has not elapsed to pronounce a permanent cure I do the abdominal fixation in those patients less corpulent and the Watkins in the very fat ones. I feel that a prolapse should be recognized in its first or second stage and corrected then, for it is less formidable affair to deal with.

INTUSSUSCEPTION IN CHILDREN WITH REPORT OF A CASE.*

By Thos E. Craig, Fairdale.

Intussusception of the bowel consists of a prolapse of a portion of the intestine into an immediately adjoining portion. In the majority of cases in small children, the group I am taking up in this article, the involvement is in the caecum and a majority of these cases are a protrusion of the ileum into the caecum with the ileo-caecal valve as the apex of the protrusion.

Age. According to Holt's statistics most cases are between three and nine months of age.

Etiology is unknown in most cases but a weakened condition of the muscular tissue of the caecum surrounding the ileo-caecal valve is supposed to be the cause of the ileo-caecal type.

SYMPTOMS AND DIAGNOSIS

This is by far the most important and the all important part of the subject as an early diagnosis is the criterion of prognosis and treatment. It is to impress upon you the fact that an early diagnosis means a good prognosis that I have written this paper. Immediate reference of these cases to the surgeon by the general practitioner is almost as important as in fulminating appendicitis. The symptoms are classical and in most cases all are present. I will group them in what I believe to be the order of their importance.

1. Sudden acute colicy pain; 2. Nausea and vomiting; 3. Tumor; 4. Prostration; 5. Tenesmus; 6. Bloody stools; 7. Lack of the high temperature found in the acute abdomen.

1. The onset of the pain is very acute and usually in a healthy child. In fact the mother usually tells you on your arrival that the baby has never seemed to be in better health than just before it took sick. The next thing she tells you that she never saw a baby have the colic this bad before. The location of course varies according to the location of the obstruction but is usually just below the hepatic flexure of the colon. The spasms of pain will

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*Read before the Muldraugh Hill Medical Society.

last one to three minutes as the child appears to be suffering intensely. Then it becomes easy and will appear to sleep for a period of five to ten minutes when the attack recurs.

2. Nausea and vomiting almost immediately follows the onset of pain and is very severe. The stomach will not retain medicine or water.

3. Tumor. This is very characteristic and practically always palpable in an early case as meteorism is the main cause of it being over looked and meteorism is a late development. The tumor is classically described as sausage-shaped and the expression is very descriptive of the feeling of the mass. The mass is usually about the diameter of a frankfurter sausage and about half as long. This tumor has a peculiar feeling that cannot be described, but once felt is always remembered. It feels entirely different from any other mass usually found in the abdomen.

4. Prostration after the first few hours is very severe. The pulse becomes thready and the patient appears to be in extreme shock.

5. Tenesmus is usually severe and the nearer the rectum the tumor the more severe it is.

6. Bloody stools. I have purposely placed this next to the last symptom as it is not always present, and its absence must not entice us into a negative diagnosis. Literature mentions many instances where it is not present and in the case I will report it was not present. When present it is classical as con firmative a symptom as any of the above. We will notice a patch of bloody mucus in the center of the stool. The amount of blood varies from a small amount to profuse hemorrhage.

7. Lack of high temperature found in the acute abdomen. The reason of this is, of course, apparent as no septic process is present until late in the disease.

In completing our diagnosis we fall back to our old friend the X-ray which is absolutely confirmatory and besides of inestimable aid in locating the point over which to make our incision. A solution of Barium is prepared and introduced into the colon through a small rubber catheter as this causes less straining and tenesmus than a large rectal tube. The tank of Barium holding about three pints of the solution is elevated three to four feet above the child for the two-fold purpose of forcing the solution well up against the intussusception to locate its position and to exert water pressure to force back the advancing portion of the bowel. If no intussusception is present the solution will fill the colon and pass through the ileo-caecal valve as statistics show that in healthy children the ileocaecal valve is incompetent in 99 per cent of cases.

DIFFERENTIAL DIAGNOSIS

Volvulus is the only thing one would think could be confused with intussusception but I believe that many cases of intussusception have been diagnosed as so-called cholera-infantum. The error is, of course, a grave one and means the difference between life and death to the infant but I feel that it has occurred frequently and I believe you gentlemen will uphold me in my contention. The spasmodic character of the pain, the presence of the tumor and finally the X-ray should preclude all matter of doubt. As to volvulus it is essentially a surgical condition and no serious mistake can be made as operation is imperative in both.

TREATMENT

There are only two things to do and the first should always be resorted to only as a preparatory step to the second, and not as a dependable cure. They are 1, water pressure, and 2, operation.

1. Water pressure should be used as a preparatory step to the X-ray location of the seat of trouble. Put the Barium solution in an ordinary fountain syringe about four feet feet above the child's body. Elevate the buttocks of the child about ten inches above the shoulders, insert the catheter, press the buttocks close together and let the solution run in. At the same time use gentle massage over the tumor. Try this a time or two and if no reduction results prepare the child for operation at once.

OPERATION

This is comparatively a simple procedure if the child comes to operation early in the disease before gangrene has occurred in the intussusception. Every hour of delay adds greatly to the gravity of the prognosis. The abdominal cavity is opened and the overlapping portions of intestine are gradually teased apart by gentle manipulation. The seat of intussusception is carefully examined to determine the vitality of the intestines and the operation is completed by stitching a strip of peritoneum to the caecum and a strip to the ileum in such a manner that they pull in an opposite direction so as to prevent recurrence. This is very necessary as cases are on record where the trouble has recurred as high as five times. If gangrene has occurred of course the gut will have to be resected which adds greatly to the gravity of the prognosis.

REPORT OF CASE

Baby B., six months old, previous health good, family history negative. Called July 9th, at 1 A. M. Father told me to please hurry as baby was suffering intensely. It had its first symptoms at 10 P. M. of the day before and was as healthy as it ever had been just before the attack. Upon arrival at residence I found the baby to be suffering intensely with a spasmodic pain. It would draw up its legs and scream for a period of one to two minutes and then seem to be easy for about five to ten minutes when the spasm would recur. It was very badly nauseated and would vomit with every spasm and in between spasms when an attempt was made to administer medicine. Upon abdominal examination I found a mass in the right upper quadrant of the abdomen which on palpation appeared to be about one inch in diameter and about three inches long. It was fairly movable. Temperature at that time was 100 F. I made a diagnosis of probable intussusception and left it at two A. M., with orders to use warm applications locally and ten drops of elixir lactate pepsin hourly by the mouth. I returned at six A. M. and found the condition about the same only the child seemed worse prostrated. I then consulted with Dr. Philip F. Barbour, who confirmed my diagnosis and advised me to remove the child to an infirmary and try water pressure as a preliminary to operation. I then called Dr. R. L. Ellars and we tried water pressure by the Barium solution with no results. We then X-rayed the child and located the trouble in the ascending colon. We removed the child to Sts. Mary and Elizabeth Hospital and operated at nine-thirty A. M. which was less than twelve hours after the onset of the first symptoms. We found the mass in the right upper quadrant of the abdomen with about seven inches of the ileum, the appendix and the tip of the colon invaginated in the ascending colon. The parts were separated by gentle manipulation and as the involved area appeared to be rather devitalized it was placed in warm saline packs for fifteen minutes when it had entirely recovered its color and was replaced. A strip of peritoneum was sewn to the caecum and one to the ileum to prevent recurrence and the abdomen closed. The recovery was rapid and uneventful and today, one month after the operation, the child appears as well as ever.

I wish to call attention to the fact that:

1. This case was operated on within twelve hours after the onset of symptoms.
2. The gut was already nearly gangrenous.
3. The rapid recovery from early operation.
4. The inefficiency of water pressure in a vast majority of cases.
5. Early operation is imperative as these young patients cannot withstand the prostration and shock incident to this condition that an adult under similar circumstances can.
6. This is a relatively rare disease which fact is one of the main causes of it being overlooked.

MULTIPLE NEURITIS IN CHILDREN. AND TREATMENT.*

By H. T. Crouch, Bardwell.

Multiple neuritis or polyneuritis is an acute inflammatory disease of the peripheral nerves, degeneratve in character, and usually symmetrical in distribution, but it is not necessarily so.

Etiology: The chief cause of multiple neuritis in children is diphtheria, although it is seen after other infectious diseases, especially malaria, typhoid or scarlet fever, measles and mumps. In diphtheria the inflammation is due to the direct action of the toxins upon the nerve structures, since it can be induced in animals by injecting the toxins into the circulation; there is little doubt that in all infectious diseases the inflammation is excited in a similar way (Holt.)

Arsenic, phosphorus and alcohol have been known to produce the disease and as these drugs are used quite extensively during child life they should always be considered as possible etiologic factors, many mild cases of neuritis in children following exhaustive diseases with prolonged toxemia, one doubtless overlooked the prolonged time required for the return of muscle power in the arms and legs after disease, being attributed solely to muscle weakness. I have noted a few cases following lobar pneumonia accompanied with high temperature and some cases following prolonged attacks of ileo-colitis or dysentery and there are cases classed as rheumatic caused by exposure to cold.

Pathologists tell us that the nerves affected may show both interstitial and parenchymatous changes, early in the disease there is a congestion of the nerve sheaths, and multiple hemorrhages have been found in them; later in the disease the nerves undergo the changes peculiar to degeneration of nerve structures, with these changes in the nerves there are associated, in some cases, inflammatory and degenerative changes in the ganglion cells of the spinal cord, although Holt says "They are much less severe than are the lesions in the nerves," however, they were once regarded as the explanation of some cases, particularly of diphtheritic paralysis.

As to the distribution of the lesion, Kerley says: "A peculiarity of the lesion is, that, the further away the peripheral nerve structure is, from the parent cell, the greater is the susceptibility of the nerve to the influence of the toxic agent. The anterior tibial group, the soft palate, and muscles of deglutition and the musculo-spiral are the most frequent nerves involved." Although almost any nerves in the body may be affected, the spinal nerves, inaculomotor and abducens. Several nerves in cranial nerves, the pneumogastric, hypoglossal oculomotor and abducens. Several nerves indifferent parts of the body are usually affected the lesion being in most cases symmetrical.

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*Read before the Carlisle County Medical Society.

Symptoms: The onset of multiple neuritis in most cases is a gradual one, usually from two to four weeks before the paralysis reaches its height. very exceptionally the onset is abrupt, with paralysis in a few days. Holt says, "It is characteristic of this disease that both motor and sensery symptoms are present, and they are the same in their distribution." The sensory symptoms are marked only in the early stage of the disease, while the paralysis is increasing they improve so much faster than the motor symptoms, that they may be absent at the time the paralysis is at its height. The pain is usually along the the course of the affected nerves, which is sharp and neuralgic in character, and acute tenderness of the nerve trunks and muscles. Usually a hyperasthesia early in the attack, followed by partial anesthesia, sensations of touch, pain, temperature, and the muscular sense are all about equally affected. I am sure we do not appreciate the sensory symptoms in the diagnosis of multiple neuritis as we should do, for too often we attribute the symptoms to just a peevish, fretful, spoiled child —until the paralysis makes the diagnosis.

There is first noticed a general weakness in the affected muscles, which are usually symmetrical as the extensor groups of the lower and upper limbs are most often affected, there may be wrist and foot-drop and it may gradually extend to the muscles of the neck and body, although this is rare, when it occurs the child is absolutely helpless, unable to sit up or support its head, the latter rolls about on the shoulders like a ball. Holt says, "That weakness of the spinal muscles produce deformities, which may be mistaken for Pott's disease even by experienced observers. In diphtheritic paralysis the muscles of the throat are usually first affected, the palate, pharynx and larynx and paralysis of the throat and diaphragm distinguishes diphtheritic paralysis from all other forms of multiple neuritis." Throat paralysis shows itself by a nasal voice and regurgitation of fluids through the nose, by difficulty in swallowing or by entrance of food into the larynx due to anesthesia of the epiglottis and paralysis of muscles of deglutition.

Owing to paralysis of the muscles of accommodation there may be experienced difficulty in reading. I have noted ptosis in several cases.

Respiratory paralysis—usually due to involvement of the phrenic or intercostal nerves is ushered in by dyspnea, rapid thoracic breathing, whispered voice, cyanosis, and all the impending symptoms of suffiocation, terrible to witness. The cardiac nerves may be involved or a toxic myocarditis supervene, in either case it is almost always fatal, death occurring very suddenly on slight exertion, or in one or two days from cardiac failure. The early symptoms of cardiac involvement are a weak and compressible pulse, irregular and intermittent, often slow, but very rapid on the least exertion, as the symptoms increase there is marked pallor, cold extremities, restlessness, precordial distress and death.

Diagnosis of multiple neuritis are the infectious nature of the disease with which it is associated and the combination of motor and sensory symptoms with the same distribution, and the occurrence of atrophy, and diminished reflexes or electrical response.

"The gradual onset and wide distribution of the paralysis—if all the extremities are paralyzed it is altogether the most probable disease; and if added to this the neck and spinal muscles are paralyzed the diagnosis is almost certain," says Holt. The fact that the paralysis is often incomplete, and that it involves distant parts from each other, are also important."

Treatment: The general management is largely palliative depending on the cause of the neuritis, as there is a strong tendency to spontaneous recovery in four to eight weeks. In cases due to the use of alcohol or some other drug, the elimination of the exciting cause will usually be followed by recovery. In those cases due to the toxemia of preceding disease, time and good nursing are usually all that will be required to effect a cure. When pain is present, the best means of relief is afforded by heat. The affected parts may be bound in thick layers of cotton-wool; should the pain cause restlessness and interfere with sleep, bromide of soda in six to twelve grains, to a child five to ten years old will often give relief; the salicylates or aspirin will also often relieve the pain, but care should be taken not to push it too long as it irritates the stomach and disturbs the appetite; Codein is a good sedative in multiple neuritis, given in suitable doses to the age of the child, every three to six hours as required to relieve pain; after the acute symptoms have subsided, tonics as iron, quinine and strychnine in proper doses in combination, given three times a day for a few weeks, then alternate with maltine and codliver oil for one or two weeks and then back to the first tonic and so on as long as is found necessary; by shifting the tonic the child is not so apt to rebel at the proffered medicine; massage properly given is often beneficial to the paralyzed and atrophied muscles, but electricity and orthopedic appliances are seldom necessary in these cases. But in diphtheritic cases we more often have paralysis which stubbornly hold on and much benefit is had from electricity, both foradic and galvanic, and sometimes mechanical devices are useful to prevent disention of the affected parts.Then, too, because of the danger of involvement of the heart, muscles of deglutition and respiration, diphtheritic neuritis should be under close observation for heart and respiratory weakness, and should the heart show irregularity and weakness, perfect rest should be enjoined, not allowing the patient to turn over in bed or raise his head without assistance, for sudden death occasionally results from very slight exertion.

The drugs used in cardiac involvement are strychnine and camphor, hypodermically and if heart failure threatens, tincture strophanadded; Holt relies on morphine, keeping the thns or digitalis and codeine or morphine is patient under its unfluence until threatening symptoms subside.

In respiratory paralysis the general reliance is upon strychnine or atropine in full doses, and fordization of the respiratory muscles especially the diaphragm. It is necessary in some cases of throat paralysis to give food through a tube introduced through the mouth or nose.

I would say in closing that we all know now, the earlier diphtheritic antitoxin is given, the less the percentage of paralysis we have to deal with.

Radium Treatment of Skin Cancer.—This communication from the Zurich skin clinic relates that forty-five of forty-six superficial and papillary carcinomas of the rodent ulcer type healed completly and vanished under radium exposures. The cancers were on the lids in twelve, and the healing proceeded without injury to vision or the movements of the lids. No filter was used. Radium treatment is particularly useful for senile hyperkeratosis which melts away under it, while left untreated, it breeds cancer.

Effect of Diphtheria Toxin on Blood.—Tongs' experiments showed that diphtheria toxin is destructive to the leukocytes in vivo as well as in vitro. Antitoxin in a proper portion is able to neutralize these destrutcive effects.

ENDOCRINES IN GYNECOLOGY.*

By J. J. RODMAN, Owensboro.

In order to get a thorough understanding of the endocrines and their functions, one should fix his attention on any one gland of the body, study its relations to other glands, in a trophic sense and in an inhibitory sense. We must study the value of any one gland diagrammatically, so to speak. We must put above it on paper or in a stream of thought those glands which inhibit it; we must put under it in another stream of thought those glands which support it. I have not time to take up this subject as I would like to, but will confine my paper to the more common anomalies; the subject is too broad for me to go into details in this short paper. There are newer things being discovered every day, and still there are many things for us to learn. I feel that the study of the endocrines is merely in its infancy.

In taking up the study of the endocrines I would like to impress one important point: Whenever we suspect an unbalanced condition of the endocrines we should look and see what glands are lacking in their support and which glands are overacting or underacting in a secretory way. Undoubtedly the greatest difficulty lies in diagnosing interglandular upsets to the fact that so many of them are of a minor degree, or a degree that is less typical than of the well exemplified cases. For instance, if we have exophthalmic goitre on the one hand and myxedema on the other; giantism or acromegaly on the one side, and certain types of dwarfs or dystrophia-adaposogentalis on the other side; if we have tetany and paralysis agitans, contrasting with myasthenia gravis; if we have excessive sexual development and physical development as well, due to tumors of the pineal gland; if we have excessive menstruation through oyster ovaries, or diminished function and relative amenorrhea through ovarian hypoplasia and degenerato-adiposogenitalis; if we have the extreme condition or adrenal disease known as Addison's disease. Is it not possible for us to have a minor degree of involvement in the glands or pluriglands, responsible for the major cases, yet they lack the typical earmarks which define the standard type which I have just mentioned.

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*Read before the Daviess County Medical Society, September 19, 1922.

I have seen so many attacks of mental depression and blues in so many of my patients, so many cases of premenstrual excitement and states of exultation of minor degree, so many cases where the state vary from a slight exultation or slight melancholic type, to puerperal mania, that I have reached the conclusion that we must grant varieties in intensity, if we have the forms known as maniac depressive insanity, dementia precox, extreme melancholia and other forms of mental depression. Why may we not expect minor types of these same conditions confronting us in our medical and gynecological work? We know of the excitability associated with various grades of hyperthyroidism; we know of the mental apathy accompanying the various degrees of myxedema; we know the mental peculiarities and change in character associated with patients with pituitary anomalies. All of these alterations experienced in mental and nervous diseases of extreme types have convinced me that we are dealing with the same thing, only in a minor type in our so-called neurasthenia, neurosis and hysteria; in fact, I am of the opinion that the terms neurasthenia, neuroses and hysteria are misnomers; they are cloaks behind which we doctors may hide our ignorance. I believe that as we become more acquainted with endocrinology we will have found that there is an unbalanced condition between some of the glands of internal secretions causing these conditions. Then it behooves us to search and see what glands are at fault. We must also look and see what gland or glands are failing in their support, and which gland is overacting or underacting. This leads us into a maze of combinations which requires much study in many cases to unravel and to help. Now I wish to quote from Bandler the following, which will be much help to you in deciding whether you are dealing with a condition due to some disurbance of the endocrines or not:

"When you take a patient's history ask her as much as you like about how old she was when she commenced to menstruate, how menstruation came an, etc., but don't fail to ask her this one simple question: How many days before you menstrate can you tell that you are going to be unwell?" It is the simplest question to ask, but Bandler says that it is a key that unlocks more information to you than any other you can ask. If she states that she does not know until the blood comes, write on your chart, "Good endocrines." If she tells you that a week before time her breasts become full and she has a little pain, that is something. But if she says that a week or so before her expected menstruation she is nervous, excitable, restless, "crazy," that she slaps her children around, though she does not at other times; that she quarrels with her husband, though she does not at other times, then write on your chart something is wrong with the endocrines, and get busy to find out the gland or glands at fault.

The theory of treatment by endocrines follows two plans: First, give those extracts which the body is producing too little; second, if the body is producing too much of any one extract, attempt to counteract this overactivity by giving other hormones which diminish, oppose or inhibit this over-secretion. To go about this procedure rationally we must first possess a knowledge of the physiological action of the various glands and a therapeutic knowledge of their probable hormones.

Now, of all the glands that concerns us most in gynecology the thyroid possibly gives us the most trouble. Normally it is a small gland only weighing about an ounce, yet all the blood of the body passes through it in an hour. The normal function of the thyroid is to promote growth and possibly to neutralize poisons. When it is defective we have the cretin, a typical example of growth retardation, both mental and physical, hence the hyperthyroid patient is usually very active in mind and body. You have no doubt noticed how talkative your hyperthyroid patient is. The thyroid secretion arouses mental activity, being a decided cerebral stimulant; it is a necessary element in promoting growth in childhood and controlling the development of the body and mind.

The principal conditions we have to encounter with the thyroid are a hyperthyroidism, and a hypothyroidism, then the thyroid may be the subject of an acute infective process, or thyroiditis, or it may be the seat of a thyrotoxicosis and adenoma, and the various forms of goitre which I will not attempt to discuss in this paper, but will attempt to take up the two functional disturbances which I have just mentioned.

Hypothyroidism or the extreme type known as myxedema or organic hypothyroidism, the symptomatology which I will discuss briefly. Incidentally cretinism is really early myxedema, due to the early lack of the thyroid hormones. The changes in the skin are most obvious, and it is due to their prominence that the disease received its name. It is dependent upon the condition of infiltration or edema. However, it is really not an edema, for the infiltrated products seem to be rather a mucoid product rather than an edematous, and there is no pitting on pressure. The color of the skin is a buff-pink, sometimes almost grayish; it is puffy, dry and desquamates easily; the hair is dry and brittle, the sweat glands are inactive, the teeth are invariably in poor order, the nails are very brittle and dry, crack easily and are poorly nourished; the hair is also dry and brittle and falls out easily; the vital processes as a whole are reduced to minimum, the temperature is usually subnormal, slow purse and a tension much below the normal, due to the associated adrenal insufficiency; the mental powers are much below par. Mentality may vary from dullness to dementia. Impotence is the rule in men and in women, either amenorrhea or menorrhagia, and in some cases atrophy of the genital organs.

In infantile myxedema or cretinism, with the addition to the findings, there is a condition of physical and mental backwardness, the face has a broad, puffy, "sloppy" appearance, "saddle nose," and the expressionless countenance, all of which make a pitiable picture.

Hyperthyroidism, the other principal form of thyroid dyscrasia, is more commonly known and more complex than all the functional thyroid diseases. Here the thyroid gland is unusually active, with or without a marked increase in size. This condition is usually called "exophthalmic goitre," though an excessive thyroid secretion may be present without the exophthalmia, and rarely the exophthalmus may be present without the goitre, parenthetically, the use of a physician's name is confusing. Parry discovered the syndrome first in 1786, Graves explained the syndrome intelligently in 1835, while Van Basdow in 1843 gave a better description and connected the disorder more definitely with its real cause.

As to causes, fright and excessive emotions are frequently connected with the onset of a severe exophthalmic goitre. Some claim that infections, toxemia usually of bacterial origin, a careful study in many cases will reveal some focal infection such as tonsils, nasal fossa and adjoining sinuses, teeth, colon and gall bladder.

In all cases of hyperthyroidism the pulse rate and the heart action is increased. I usualy rely on a slow pulse for hyperthyroidism. Tremor is usually present in hyperthyroidism. Bandler, in his work on the endocrines, claims that the exophthalmos is due to probably irritation of the hypophysis. Berry claims that exophthalmos is due to accumulation of fat in the orbits.

Hyperthyroidism is far more prevalent than hypothyroidism, and is of a much more difficult proposition to control. The feeding of thyroid extract to hypothyroid patients as a rule has a very decided effect. While all these patients of hyperthyroidism are in a state of cellular irritability and the sympathetic nervous system is on edge, so to speak, in all cases of sympathetic irritability the adrenals are hyperactive. Harrower makes the statement that to his opinion there is not a case of thyroid excess without hyperadrenia accompanying it. Acting upon this theory I have been in the habit of using the antagonist to the adrenals which is pancreas substance(not pancreatin). This, with the removal of other underlying causes, rest in bed in a quiet room remote from worry and noises, has served me very beneficially in controlling these cases.

Parathyroids are four tiny small glands not larger than kernels of wheat; are now known to be very essential to life. They probably have to do with maintaining lime in the blood, and also act as antagonists to the thyroids. They seem to help the body resist bacterial invasions. Removal of the parathyroids in pregnant dogs causes tetany. Therefore, the theory has been advanced that tetany, a condition of tonic muscular cramps, is caused from lack of parathyroid secretion. Paralysis agitans is another condition which of late has been attributed to a lack of parathyroid secretion, while myasthenia gravis is thought by Chvostok to be due to a hyperfunction of these glands.

Little was known of the adrenal glands until Addison, in 1849, noticed that lesions of them caused bronzing of the skin. In 1895, Oliver Schafer demonstrated that they contained something which was essential to life. This essential something has been called epinephrim. These glands are composed of two parts, the cortex and medulla. The cortex is classed as the male gland. For instance, if the adrenal cortex is over-active in the girl she will show some of the traits of the male in the way of courage, absence of fear, anxiety, etc. Decided fondness for manly sports and, though feminine in other ways, may be less sentimental. In her features she is usually more coarse, and a tendency to beard on the face, especially if there is also an over-active anterior pituitary. If there is a predominant stimulant of the adrenal medulla, there will be a tendency to nervousness, irritability, sensitiveness, blushing, fear, anxiety, etc. Therefore, the medulla is classed as the female adrenal gland, as is also the posterior pituitary, which, coupled with the hyperactive adrenal medulla, gives to the girl her beautiful complexion, a real "peaches and cream" complexion. The doll-like face attracts attention to the thyroid and post. pituitary. The pituitary gland is about the size of a pea, situated in the Sella Tursica, just behind the root of the nose. It is composed of two morphologically and distinct parts, the anterior and posterior lobes each has a separate function, the anterior seems to be concerned with the process of growth, the posterior with the process of metabolism, especially that of sugar. If there is a hyperactive condition of the anterior lobe in childhood there is a great tendency for the skeleton to become larger until ossification of the epiphyses is complete.

The posterior lobe being concerned in the metabolism of sugar, if there is a failure in the function of this lobe there is a great tendency for the individual to gain in weight. In the young growing child there is a diffuse accumulation of fat as a result to the very great sugar tolerance, and as a lack of this secretion from the posterior lobe there is an atrophy of the genital organs, or in the young they fail to develop, this condition being known as distrophia adipose-gentalis, because the hypophysis has a decidedly close relation over the development and preservation of the genitalia.

We have now considered the principal glands that concern the gynecologist with the exception of the ovary, mammary, placenta, corpus luteum and thymus, which we are all very familiar, as you all know the thymus gland retrogresses in the early years up until this time it has held the genitalia in check, it has held the ovaries and gonads in check, but at this period the ovaries begin to develop in the female and the testicles in the male. The gonads have an internal secretion which has been held in abeyance by the hormone of the thymus, which stimulates the ant. paturitary and adrenal cortex to action, and as a consequence the boy develops into manhood and takes on a manly form. The ovaries which have also been inhibited by the thymus now begin to develop and their hermone stimulates the posterior paturitary, and adrenal mudella and the girl begins to menstrate and takes on the characteristics of a woman, her breasts enlarge, there is a difference in her skeleton from the male, there is certainly a reason for this difference in characteristics and in make-up. Now, then, as there has been an inhibitory effect upon the ovaries of the girl up until puberty by the thymus, is it not probable that the thymus substance or extract would be very beneficial in controlling a hyperactive condition of the ovaries? Therefore I have been using the thymus extract in most cases of menorrhagia and metorrhagia, especially that in young girls, and as we further know that the woman ceases to menstruate when she becomes pregnant, due to the inhibitory effect of the placenta over the ovaries, is it not reasonable to believe that this is also very beneficial in controlling these conditions? We also know that the majority of women rarely menstruate during lactation, which is due to an internal secretion from the breast, therefore we know that the mammary has an inhibitory effect over the ovaries and is also very beneficial in producing contractions in a subinvolution. Therefore, acting upon this theory, I have been using this combination for some time in all my cases of menorrhagia and metorrhagia. Of course I do not recommend it in cancers. However, Bandler and others claim that these extracts do have some effect in fibroids, especially in controlling hemorrhage.

Now, as the ovaries begin to show the added secretory power which results eventually in menstration and evulation, a relative new secretion is brought into use, the corpus lyateum, with the added power of the interstitial area also is brought into the circle of the endocrines, all of which are concerned in the development of the body, mind, sex organs and sex functions from puberty through adolescence to adult life.

Let us imagine a family of ten, for instance, working together in concert harmoniously for years. Then suppose a new member is brought into this family circle. If he is agreeable and acts harmoniously with the ten, everything is well and good, but suppose he is not in harmony with the other members, we will say that he is arrogant and domineering in his disposition. He will act as an element of irritation to all the others, or possibly irritate some and depress others. As a result there is a lack of harmony and coordination. So it is with the endochine chain at the period of puberty and adolescence. The more stable and harmonious the activity and inter-relations with the other endocrines, and the less trouble will the girl have in developing her menstruation, and the more certainly will she go on through the next succeeding years with less untoward manifestations.

If there is a marked hyperthyroidism, the girl will suffer from tachycardia, palpitation of the heart, excitability and nervousness; if hypothyroidism, the opposite will be expected.

If there is excessive action of the post. paturitary she will be troubled with dysmenorrhea; her tender emotions will be easily aroused, blushing more noticeable, sex instinct is more pronounced. Psychic fears more evident.

If, on the other hand, the post. paturitary is underactive, there may be no pain at menstruation, the menses are usually scanty, and the girl is more liable to be stout and adipose, totally different in many of her functions and appearance from the girl with post. hyperpaturitarism.

We will now consider the period of regression, the climocterium, or so called by the laity the change of life. It is a change; there has come about a rearrangement of the gland activities, the going down hill, as it were. The ovary is supposed to pass out of the sphere of action just as at puberty it entered into a new sphere of action. If the other glands regress in equal and parallel ratio and the inter-relation between the glands is preserved, the woman passes through this trying period without much difficulties. But if this rearrangement is not normal, some of the glands regress more quickly than they should and others more slowly, or if ovary regresses and the others do not, we have all the innumerable and possible stimulation or inhibition, which accounts symptoms of hyperactivity or hypoactivity, or a combination as a lack of ovarian for the various nervous manifestations at this period.

Now I do not wish to appear over-enthusiastic along this line, neither do I attribute every abnormal condition to some upset of the endocrines, neither do I claim that glandular therapy will cure all cases that come under this head. Often there is some other condition which is responsible for the endocrine arboration, which can only be relieved by surgery. But I will say that since I have been making the endocrines a study I have been able to relieve many conditions which I was not able to benefit in the least, therefore I feel that I have been amply repaid for my efforts. Endocrinology is making such vast strides that it promises to overthrow entirely some of our older ideas of physiology, pathology and therapy in our textbooks. New things are always treated with skepticism, but each thinking physician may find abundant material for research, so let us work together that we may prove beyond a doubt while heredity shapes our ends, there is an endocrinity which runs parallel.

SUMMER DIARROEA IN INFANTS.*

By James W. Bruce, Louisville.

Summer diarrhoea is due in the vast majority of cases to fermentation. This fermentation involves usually carbohydrate food, but fat is also implicated sometimes. In hot weather the digestive juices of the infant intestine do not function as they should, and as a result carbohydrate and fatty foods are not digested properly. They lie in a half digested state in the gut and fall easy prey to fermentating bacetria that swarm there. The products of bacterial fermentation are irritating acids, and these acids cause diarrhoea. Fermentative diarrhoea, therefore, is due to bacterial infection of the food mass, resulting in the formation of irritating substances such as formic, acetic and butyric acids, which stimulate the intestianl wall to increased peristalsis and excessive secretion of mucus.

We must bear clearly in mind the distinction between fermentative diarrhoea and colitis or dysentery. Fermentative diarrhoea is infection of the intestinal contents; it is caused by the ordinary fermenting bacteria; it does not involve the intestinal wall; the stools are green and watery, and contain a great deal of mucus, but no pus and rarely streaks of blood. Colitis, on the other hand, involves the intestinal wall; it is caused by the dysentery bacillus; the stools contain large amounts of mucus and also of pus and blood from the ulcers on the mucous membrane of the colon and ileum. Colitis was formerly a very common disease among infants, but since the introduction of certified milk, it is quite rare. As it occurs mostly in summer, it can be included in the title "summer diarrhoea." However, it is so rare as compared to fermentative diarrhoea, that I will use the time at my disposal for discussion of the latter disease.

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*Read before the Henry County Medical Society.

The symptoms of fermentative diarrhoea are so well known to all of us that there is no use in doing more than hurriedly recalling them. The onset may be sudden, as usually happens after a gross error in diet or gradual—as happens when a baby slowly loses its digestive capacity. Stools are 4-5 to 20-30 a day—yellow, loose and undigested in mild cases—green and watery in severe cases. Fever is absent in mild cases, but may last a week or more in severe cases. I have rarely seen it last over a week in a patient who survived. The buttocks are scalded and red from acid discharges. The child loses weight very rapidly and may get into a very serious condition in twenty-four to forty-eight hours. Loss of weight is due mostly to loss of fluid from the body in the watery stools. This loss of fluid causes the tissues to shrink and gives the baby the washed-out appearance, hollow eyes and cheeks, which soon develop. The skin is loose on the body and can be pinched up in little folds between the fingers. It has a dry, leathery feel. This loss of water leads to concentration of the blood and diminution or complete suppression of urine. The result is that acid products accumulate in the circulation, because there is not enough water to wash them out and the result is acidosis, which may be fatal. The acid products most commonly found in excess in these cases are acid sodium phosphate and lactic acid.

TREATMENT.

We have two objects in the treatment of fermentative diarrhoea:

1. Control of diarrhoea.
2. Control of water loss and prevention of acidosis,

1. Diarrhoea in these cases we have said is due to fermentation of carbohydrate and fat. How can we stop this fermentation? One very original investigator has attacked the problem by attempting to sterilize the upper end of the small intestine with argyrol. He gives his babies a teaspoonful of 25 per cent argyrol in each bottle. I simply mention this without comment. The most effective way to control excessive fermentation is to reduce carbohydrate and fat in the food and feed excess of protein. The putrifactive bacteria which live on protein food are antagonistic to the fermenting bacteria and will crowd them out if given encouragement and support. But how can we feed protein food to a little baby? The chief protein of milk is casein, and this can be obtained as calcium caseinate—a soluble white powder—in several preparations on the market, e. g., "Casec," made by Mead-Johnson; "Protolac," by the Dry Milk Co., or "Larosan," by the Hocman LaRoche Chemical Co. By adding this powdered casein to mixtures of milk and water, we make protein milk, and protein milk will stop fermentative diarrhoea. Protein milk can also be gotten on the market already prepared in powder form. All you have to do is add hot water and serve. Such preparations are made by the Hoos Co., of Chicago; Merrell-Soule, of Syracuse, N. Y., and the Beebe Co., of St. Paul. It is remarkable how quickly the stools will lose their green watery character and become yellow after the administration of protein milk.

Drugs take a decidedly secondary place in the treatment of fermentative diarrhoea. However, they do some good and should be used. Bismuth and compound chalk mixture are the best and can be given in large doses. Paregoric is a dangerous drug, and as ordinarily used does more harm than good. Paregoric should only be used after you are sure that the toxic products of fermentation have been thoroughly cleared out. Otherwise these products will be locked up in the bowel, where they will be absorbed and do harm. However, paregoric is undoubtedly of great benefit in some persistent cases.

2. We now come to the most difficult part of the treatment of these cases, the control of water loss and prevention of acidosis. These patients lose a tremendous amount of water and lose it rapidly. Unless this water is replaced, the blood becomes concentrated and urine ceases to

be secreted. As a result of this lack of urinary secretion, acids formed by body metabolism are not carried off, and acidosis looms before us. Also since these patients are receiving practically no carbohydrate food, there is abnormal production of acids from fat metabolism; the same condition we meet in treating diabetes. This makes the danger from acidosis doubly imminent, for we have not only abnormal production of acids, but lack of water to excrete them. What can we do about it? We must act and act quickly. There is no disease that kills more quickly than fermentative diarrheoa and many times in spite of the most prompt and efficient treatment the little patients die. We must supply these patients with water, alkalies and sugar—all in large amounts. Water can be given by the mouth to some extent. This is sufficient in mild and moderate cases, but in severe cases it is not sufficient and then it must be given intravenously, by hypodermoclysis, or intraperitoneal injection. These procedures are difficult to carry out in private houses and had best be done in hospitals. Of the alkalies, sodium bicarbonate is the most available. (It can be given in moderate amounts by mouth in most cases in spite of its disagreeable taste. However, in severe cases it must be given intravenously. It cannot be given under the skin or into the peritoneum, because it will cause slough of the tissues. Sugar is necessary only in severe cases and must be given to prevent abnormal production of acids, which we know always takes place when carbohydrate food is withheld for a long time. Sugar cannot be fed by mouth in these cases, for it would increase the fermentation and diarrhoea. It is best given intravenously or under the skin or by intraperitoneal injection. Only chemically pure glucose is fit for this purpose.

In closing, it might be interesting to outline the treatment of a moderately severe case of fermentative diarrhoea—say one characterized by sudden onset with 1 or 2 degrees of fever and 10-12 loose green watery stools a day. Let us suppose we are called to see this patient twenty-four hours after the onset of the trouble. We would give the child a dose of castor oil and then no food whatsoever for 24-48 hours. During this starvation period we would urge the patient to drink as much fluid as possible—two quarts or more, if possible. The fluid we would offer him would be plain water, weak barley water, or weak tea. Any of these could be sweetened with saccharin, but not sugar, for that would make the diarrhoea worse. After 24-48 hours' starvation, we would begin on protein milk made by adding powdered casein to a weak mixture of milk and water, say one part milk and two parts water—the whole mixture boiled three minutes and fed in quantities and at intervals according to the age. In place of using a milk and water mixture with powdered casein, we could use an already prepared protein milk. As the stools become yellow and gain consistency, we can add more milk and finally add some sugar or well-cooked starch, finally getting back to the normal formula for the child. All changes must be made slowly and after careful consideration of the appearance of the stools. Colon irrigations probably do some good in clearing away irritating products, but the chief good they do is in giving the mother something to do.

We cannot leave this subject without due consideration of the prophylaris or prevention of this trouble. In no other medical condition is the old adage so true that, "an ounce of prevention is worth a pound of cure." Summer diarrhoea is largely preventable, although it will occur in some cases in spite of the most careful treatment. The following suggestions may prove helpful:

1. All milk fed during the hot months should be brought to a boil. It makes no difference how carefully milk is inspected, there is always some chance of infection creeping in. By boiling the milk immediately before it is poured into sterile bottles, the danger of contaminated milk is reduced to a minimum. The disadvantages of boiled milk are that the antiscorbutic vitamin is destroyed and that the milk is constipating. The first objection should carry no weight, because all babies should receive fresh orange juice or fresh tomato juice every day. Constipation, however, is a serious objection. The best way to get around this is to feed buttermilk. This has a regulating action on the bowels and tends to correct both constipation and diarrhoea. Buttermilk can be made by churning, or, better still, by the use of tablets containing lactic acid-forming bacilli. Fresh and reliable preparations of these tablets are easily obtained and the milk is not difficult to prepare. The simplest recipe for making

sour milk that I know is as follows: Allow sweet milk to stand until it forms clabber, three or four days, if necessary. Then churn to break up the curd, add one tablespoon of cane sugar and one tablespoon of wheat flour to each quart of sour milk; boil one minute. After the first time the milk is made it is not necessary to wait several days for it to sour. Just add one ounce of unboiled clabber from the previous day's supply and let stand twenty-four hours at kitchen temperature. I believe that buttermilk or lactic acid milk of some kind is the best preventive of summer diarrhoea that we have.

2. Another point of great importance is regularity in feeding. This should be absolutely insisted upon by the physician in charge.
3. Plenty of water to drink and frequent bathing is a great help.
4. During very hot weather it is always safer to dilute milk a little for all children up to two or three years.
5. The use of stewed fruits and green vegetables in hot weather must be very carefully regulated. These foods are most valuable in relieving constipation and providing necessary mineral and salts. However, in hot weather their use is not devoid of danger. Green vegetables should be boiled until tender and mashed through a ricer for little babies, and mashed with a fork for older children up to three or four years.

BRAIN TUMOR: CASE REPORT.*

By L. Wallace Frank, A.B., M.D.,
Louisville, Ky.

On December 7, 1921, a well-developed and nourished boy aged thirteen years was referred to us by Dr. T. F. Hale, to whom we are indebted for the clinical history. One sister who would have been older than the patient died in convulsions (diagnosed epilepsy) when a child. Previous personal history had no bearing on present illness.

Three weeks ago patient first noted spasm of the muscles of the left calf lasting about a minute and recurring occasionally. A week later similar spasms were noted in the left thigh and two weeks later in the left upper extremity. Spasms recurred about twelve to twenty times daily and were of about a minue in duration. There was severe pain associated with the spasm and the parts were numb and useless afterward. Stiffness and difficulty in movement of the left lower extremity persisted between cramps. There was no alteration of consciousness; no diplopia; no involvement of acular or facial muscles nor of those of the right extremities. No gastro-intestinal or vesical dysfunction. Spasms are always tonic; no headache or vomiting; no adenopathy; no scars.

Examination disclosed no evidence of intra or extra-ocular palsy or other cranial nerve weakness. Tendon reflexes of the upper extremities are prompt and power; no ataxia nor tremors; no atrophy of the muscles and no sensory defects. The right lower extremity showed active without exaggeration; no loss of no abnormality; on the left there is an exaggerated knee and ankle jerk; positive Babinski; no clonus; no atrophy; marked weakness in the movement of ankle and toes; the foot "scrapes the ground" in walking; no sensory defects and no tremor.

Patient had a tonic spasm (in Dr. Hale's office)on November 16, 1921, progressing from the left lower leg to the thigh, thence to the left upper extremity, preceded by weakness in the thigh and calf, and not accompanied with loss of consciousness, causing severe pain, and of about one minute's duration. The face was not involved. After the attack the extremities were weak and useless. The eye-grounds showed no swelling of the discs nor any vascular change. Abdominal reflexes were present on each side. Patient was given Luminol ¾ grain three times daily and no improvement noted. The dose was increased but the spasm recurred with greater frequency and severity.

On November 29 the left side of the face became involved in the attacks and there was slight recurring headaches located in the right frontal region. There was no vomiting and no change in the eye-grounds or physical signs. On this date also the patient had another spasm which toward the end became tonicoclonic in type and lasted two minutes. There was no disturbance in consciousness.

Diagnosis: Jacksonian epilepsy due to a lesion (probably tumor) in the mesial extremity of the right precentral gyrus; operation advised. (Dr. Hale.)

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*Clinical Report with Exhibition of the Specimen, before the Jefferson County Medical Society.

Operation on December 8, 1912. A flap 2x2 inches was reflected in the right motor area and the dura was turned back. There was no evidence of pressure and no tumor was seen nor could any variation in consistency be detected by palpation of the brain tissue. Between the pia and dura in the anterior portion of the opening was some yellowish adhesions and these were separated. The patient's condition became unfavorable and further exploration was abandoned. Incision was closed and the patient returned to bed. Following the operation the patient's pulse was weak and rapid, but later he reacted and the drain was removed on the following day and his condition was fairly good. However, he had a slight spasm thirty minutes but not near so severe as the previous ones had been. Five days after operation the sutures were removed and it was noted that the muscular strength in the left extremities had improved.

On December 15, the second stage of the operation was performed. The wound was opened and the dura again turned back. Some fresh adhesions between the dura and pia were separated. In front of the Rolandic fissure at the upper end of the precentral gyrus the motor cortex was edemaotus and of a purplish color. There was no intra-cranial pressure and no bulging of the cortex. Incision into the cortex at the site of the edema revealed no tumor mass or cyst wall. Owing to the proximity of Pacchanion bodies and the vascularity of the cortex further exploration was deemed inadvisable, and the wound closed.

Two days later it was noted that the strength in the left hand was improving and the left leg and thigh could be moved and that there was some motion in the ankle. Six days after operation the patient was put into a chair. The ataxia in the left upper extremity was less marked and there was fairly good use of the thigh, calf and small muscles of the foot. When he moved the leg or foot there was an associated movement in the left upper extremity. Patient was dismissed from the hospital on December 26. He was walking, but had a spastic paresis of the left lower extremity.

Patient did very well for about ten weeks and no definite signs of trouble appeared until twelve weeks after the discharge from the hospital. He then developed headache, vomiting, and the left leg became paralyzed and the left arm weak and later useless, and a certain amount of mental deterioration was noted. Upon admission to the hospital on April 14, 1922, the blood examination was practically normal and the urinalysis negative. Now there was decided choking of both optic discs, paralysis of the external rectus muscle of the right eye and of the left side of the face, but no facial spasm; ankle clonus and Babinski in the left foot; decided astereognosis in the left hand. The patient was again examined by Dr. Hale and it was then decided to make another attempt to remove the tumor, which we felt certain was present.

Operation, April 21, 1922: A large rectangular flap of soft tissue was cut in the region over the right motor cortex and the bone exposed. The bone was cut with a Hudson drill and bone-cutting forceps. There was constant oozing from the cut bone and from the separated periosteum. The patient's condition became alarming from shock and loss of blood and it was thought best not to attempt to turn back the bone flap at the present time, so the soft tissues were closed rapidly with continuous suture. Saline solution was given intravenously before the patient left the operating table and later by hypodermoclysis when he was returned to bed. The foot of the bed was elevated and heat applied. He rallied from this operation and four days later complained of headache, a drawing sensation in his face and dimness of vision. A week after operation his pulse was 100 per minute and the temperature normal. The blood count at this time was haemoglobin 60 per cent and red blood cells three and a half million per cmm.

The second stage of the operation was done on May 1, 1922. The skin and bone flap were freed and the bone flap turned down and the dura exposed. This was then opened by turning back a rectangular flap and there was very free bleeding from a large pacchonian body which was incised, the bleeding being controlled by haemostats. Following the dura incision there was immediate herniation of the brain and in the part where there had been the edema, as noted in the first exploration, there was now a tumor which extended down along the mesial aspect of the hemisphere. This growth was enucleated by careful dissection and it was then noted that there was a second part to the neoplasm which extended back into the parietal lobe, and this was likewise removed. No more tumor tissue was seen, although the brain in this region was degenerated. The second part of the tumor had extended into the lateral ventricle. A gauze strip was introduced to control bleeding and the dura and skin closed after the flap was put into position. At the close of the operation the patient was in desperate condition; saline was given intravenously while the patient was on the operating table, and upon his return to bed 300 ccm. of blood was transfused by the citrate method.

On the following day the boy's temperature was normal, pulse 120 per minute. As we were removing the drain the patient went into collapse and exhibited in sequence all the signs and symptoms of cerebral compression, a probe was introduced into the wound, and following the escape of some bloody fluid he improved. Four days after operation the drain was entirely removed, and it was noted that the patient could move his left hand much better. Degenerated brain tissue was exuding from the drainage tract, and four days later the edges of the skin were freshened and the tract closed. At the end of the third week examination revealed that the optic discs were normal, there was motion in the upper extremity and some motion in the left lower extremity, and a few days later the patient was dismissed from the hospital in good condition.

The tumor was a definitely encapsulated one measuring 4 by 5 cm, and Dr. Graves reported that the growth was a glioma with retrograde changes.

The interesting features in this case are, first, that an early diagnosis of brain tumor was made despite the absence of the cardinal symptoms — headache, choked disc, vomiting, etc.; secondly, the complication noted upon the removal of the drain; and, third, that recovery would probably not have occurred had blood transfusion not been done.

Lipovaccines.—Gay shows that animals vaccinated with lipovaccine, whose serums show no agglutinin content, are nearly as well protected against becoming carriers as those vaccinated with saline vaccine whose serums show high agglutinin content. Even in the latter animals, the agglutinin content varies in degree inversely with the protection afforded. Therefore, the agglutinin titer is certainly not a measure of protection.

COMPRESSION FRACTURE OF SPINE: CASE REPORT.*

By H. H. HAGAN, Louisville.

The patient, a young woman, aged 21, school teacher, was first seen July 13, 1921.

Family history: Father died of typhoid fever after an illness of four weeks. Mother living and well. Two sisters and one brother living and well. No history of tuberculosis in the family.

Personal history: Had measles and pertussis in childhood; typhoid fever five years ago. Has always been in excellent health.

Present illness: In August, 1920, the patient was injured by falling from a swing. This was an unusually long rope swing placed at a high point on the river bank, and swinging out over the river at a bathing beach. The patient fell from a height of not less than ten or twelve feet to the river bank. She was unable to arise and was immediately taken in an ambulance to the hospital. Examination at that time, according to the statement by the patient, did not reveal any motor or sensory disturbances. X-Ray examination of spine was not made. Two weeks after the injury she was discharged from the hospital and allowed to return to her home in this State. She was told that the "back had been badly wrenched."

After returning home she did not consult a physician. She taught school from September, 1920, to May, 1921. In May she was examined by a chiropractor, but did not return for the treatments which were advised.

When she was first seen, July 13, 1921, it was found that in the time which had elapsed since the injury she had carried on her duties as teacher and had engaged in dancing, swimming and other sports without any strikingly bad results. However, the patient had observed that the spine was sensitive on bending. Overexertion was followed by slight pain in back, indefinite pains down thighs and headache; and she thinks there had been some loss of weight.

Physical examination: A young woman well nourished, good musculature, and apparently in good health. Weight 121 pounds. Temperature 98.6, pulse 80.

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*Clinical Report before the Jefferson County Medical Society.

General physical examination negative. Thyroid moderately enlarged. Basal metabolic rate minus 8. Examination of chest negative for any evidence of tuberculosis. No paralysis. Sensory examination negative. Examination of spine showed a slight kyphosis at the first lumbar vertebra. Slight pain on bending spine. Charts covering a period of several weeks showed temperatures of 98° to 100° F. Temperature was usually 98° or 98.6° F.

Roentgen-Ray examination by Dr. Keith revealed a marked destruction of the first lumbar vertebra without definite involvment of the vertebra above or below the first lumbar.

Treatment: A plaster jacket was applied and worn until December, 1921. Since that date a leather and steel brace has been worn. Additional X-ray examinations in December, 1921, and April, 1922, have shown a definite, but rather slight increase in callus and no further destruction of the first lumbar vertebra. During the period the patient was wearing the plaster jacket she gained fifteen pounds in weight. More recently there has been a loss of four or five pounds.

Conclusions: This case illustrates the fact that these injuries are easily and frequently overlooked when the physical examination is not followed by X-ray investigation. The differential diagnosis in this case between compression fracture and tuberculosis of the spine presents an interesting problem. I believe this to be a compression fracture. If tuberculosis is now present, it has been ingrafted upon the site of injury to the first lumbar vertebra sustained at time of the accident in August, 1920.

DISCUSSION:

L. W. Frank: The case reported by Dr. Hagan is very interesting. As he has said, the question of diagnosis is one of the greatest importance, especially differentiation between spinal tuberculosis and compression fracture. About ten years ago Kummel reported a lesion which bears his name; it is supposed to be an osteitis following trauma causing absorption of the bone. Early in 1916 we reported a case of Kummel's disease before the Philadelphia Academy of Surgery, which was similar in many respects to the one reported by Dr. Hagan. There was a history of trauma followed by a period of apparent relief of symptoms, then return of pain and later kyphosis, The roentgenologic findings in our case and those reported in the case tonight were quite similar. The point has been raised, and upon which there has been considerable discussion, as to whether Kummel's disease is not a form of tuberculosis of the spine with rarefication and absorption of bone, but without the formation of the characteristic roentgenologic picture of tuberculosis. That was my object in discussing this case—i. e., to ask the question whether this might not be a case of Kummel's disease rather than a compression fracture of the spine. I have seen a number of spinal injuries considered to be compression fractures, but in all these there was a "chipping off" of the front of the vertebra usually with some injury to the cord. These evidences were not present in the case reported. It is uncertain, it seems to me, whether there was a true compression fracture in Dr. Hagan's case and whether it is a case of Kummel's disease.

Leo Bloch: I wish to discuss Dr. Hagan's case largely from the standpoint of workmen's compensation. Take a man while at work in apparently good health who sustains an injury to his spine without the production of immediate symptoms, and then later has pain and slight deformity. Would he be entitled to compensation for the ostitis which develops?

I hardly think falling a distance of twelve feet caused any injury to the spine in the case reported. The reontgen-ray picture does not look very much like a compression fracture; it looks more like an osteo poritis process taking place in tuberculous bone. Many of these cases are seen by those of us who do compensation work. Some of the patients undoubtedly have Pott's disease, but are still able to work in comparative comfort. I recall one such patient who received a slight injury or jar while at work and finally pain became so severe that he was bed-ridden. He was awarded several weeks' compensation on the claim that the jar caused his Pott's disease to become active.

Dr. Hagan's case is very interesting, but I believe there is some question about correctness of the diagnosis of compression fracture of the spine.

D. Y. Keith: Dr. Hagan has reported a very interesting case. There seems to me to be some question whether it is a compression fracture or bone destruction due to infection. In this connection I will exhibit several roengenograms which may be of interest to those familiar with fractures of the spine. We have seen quite a large number of these cases at the request of men doing compensation work. Men doing industrial surgery are expected to determine and explain exactly how the injury occurred and what compensation should be allowed, although the patient may not be seen until a year after the injury. I have seen several cases where I was sure infection followed slight trauma to the spine. We are all familiar with the effect of trauma where the bone is already tuberculous. Corporations have a serious question to consider when employes of this class are injured as compensation is always claimed and usually granted.

A man recently came to us from another part of the State with a fracture of the pelvis. He brought a roentgenogram with him made in another city which showed a typical fracture of the pelvis. Our examination confirmed this. During our investigation it was discovered that there was a chip off the body of the first lumbar vertebra. This man had been in bed from his pelvic fracture and did not know that he had a fracture ot the spine. I can easily see how infection may occur after an injury of this kind. Films of the foregoing case are shown for the information of those who may be interested. In the case of bone infection the plate made three and a half months after the injury shows no evidence of callus. In contradistinction to the foregoing another plate is exhibited which shows an old fracture of the spine with a large amount of callus. It is the general belief that callus seldom forms in the presence of active infection.

The next plate shows a fracture of the spine with destruction of the lamina of that particular vertebra. This patient was seen three months after injury.

The last picture represents a spinal injury also. The patient was seen at the St. Mary and Elizabeth Hospital five hours after the injury. The lamina were driven into the vertebral body. The cord was also injured, and the patient had complete paralysis of both lower extremities. Operation confirmed the roentgen-ray findings. The lamina were driven into the body of the vertebra, and the spinous process was broken from the ninth dorsal vertebra.

The body of the ninth dorsal vertebra was crushed with several fragments pushed anterior to the anterior portion of the vertebra above and below. You can see by the increased density where the lamina is driven directly into the spongy bone that makes up the body. The shadow of the lamina is absent in the corresponding location of the vertebra above and below.

H. H. Hagan (closing): I was very much interested in Dr. L. W. Frank's discussion regarding Kummel's disease. The medico-legal question as suggested by Dr. Leo Bloch is frequently an important matter in case of this type. Fortunately we did not have to consider the question of compensation in the case reported.

Of course it is impossible to definitely state that tuberculosis is not present in a case of this type, because it is a well-known fact that tubercular infection is often implanted on a vertebra which has been severely injured. However, in this case we have the type of injury which is very likely to produce a compression fracture. The lesion is at the dorso-lumbar junction, the most frequent site of these fractures, and there is no definite involvement of the adjacent vertebra above or below the diseased vertebra; and, furthermore, the patient is an unusually healthy robust young woman who has not shown any symptoms of tuberculosis prior to the present illness and has not been associated with tubercular individuals.

HYDRONEPHROSIS, HYDROURETER—CASE REPORTS.*

By Owsley Grant, Louisville.

I have two specimens to exhibit. One of the patients was operated upon yesterday, the other today; one was a woman, the other a man; both were about thirty-eight years of age. The most interesting feature is that both patients gave a history which was almost identical, yet operation revealed an entirely different renal condition in each.

Each patient complained of pain in the right side radiating downward toward the bladder and external genitalia, in other words, a typical history of renal colic. In both Roentgen-ray examination was negative. On cystoscopic examination in one case we were able to introduce a catheter into the ureter on the diseased side for a short distance only. In the other after several attempts we were unable to introduce a catheter. The evidence from cystoscopy was that there was a stricture of the ureter in each case.

In the case of the man there was a large tumor in the right side. He was operated upon by another surgeon a year and a half ago under the diagnosis of appendicitis and gall bladder disease. He said his appendix was removed, but nothing was done with the gall bladder. The kidney lesion was probably present at that time and was overlooked.

This patient was operated upon yesterday. He had a stricture of the ureter a short distance above the vesical orifice, and on opening the uretero peritoneal space we found a tremendously enlarged kidney, the pelvis being almost entirely destroyed. Out of this cavity we evacuated about half a gallon of purulent fluid. Nephrectomy was performed in the usual manner.

In the second case, that of the woman, the operation was performed today. The kidney removed shows tubercular degeneration at several points, but there was no marked dilatation of the pelvis, which was filled with pus. The sulphonephthalein test in both cases was negative on the right side. No phthalein appeared in two hours.

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*Clinical report with exhibition of specimens before the Louisville Medico-Chirurgical Society.

The interesting feature in the latter case is that this woman, in addition to a stricture of the ureter at the vesical orifice, also had a stricture at the utero-pelvic junction, the ureter between these points being larger than my thumb. This shows that the stricture above prevented the kidney from dilating, and the stricture below prevented urine from entering the bladder.

The same clinical picture was presented in each case, although at operation the pathology was entirely different. In one case there was a tremendous hydronephrosis, in the other a hydroureter, due to stricture at pelvic juncture.

CONSTIPATION IN THE ADULT.*

By W. J. Shacklette, Glendale.

The infectious diseases come in the main at certain seasons of the year; other diseases come more or less regularly, but constipation, like the proverbial poor, is "always with us." And often this means in person as well as in patients. We have it to reckon with every day; often every hour in the day. To the doctor it is a "jonah," to the patent medicine vender a "bonanza," to the patient it is an enemy to his well-being. It often casts a somber gloom over an otherwise sunny disposition. It takes the "pep" from the would-be energetic, and many are the ills that follow in its wake.

Had man continued to walk on all fours and gathered his nutriment from the garden and feasted on it in the state that nature had so deliciously and generously prepared for him, there would be no occasion for me coming before you today with this paper, but since Mother Eve was tempted of the serpent and stood upon her hind feet to pluck the forbidden fruit, and poor old love-blind Adam followed suit, the daughters of Eve and the sons of Adam, all up through the ages, have continued to stand erect and vie for which one could reach the highest and gather most of the forbidden fruit. And so long as man continues to live a more or less perverted life, constipation and all its evils will ever be present with us.

Nature might, and perhaps has, to a great extent, adjusted the abdominal visera to the changed posture, but nature is lost in the maze when it comes to keeping up with the perverted habits and the over-indulgent appetite of the human being.

Had man continued to live and feed more in accord with primitive nature, constipation no doubt would have been almost as infrequent and the alvine discharges as irregular as with other animals. But since man has become a creature of habit, it is necessary that he should have regular habits for his fecal discharge. It seems it might be better if it were timed for evening before retiring, but with most people it is attended to soon after the morning meal. Eating the coarser foods for the noonday and evening meals perhaps favor the morning discharge. To further encourage this habit a considerable quantity of water should be drank, as soon after rising in the morning as possible. It is not necessary that this water be hot, as experience has demonstrated to me that plain un-iced drinking water is best. All means used to encourage bowel movement, whether dietary, medicinal or mechanical, should be so timed that the movement should occur at the habitual time. No doubt great harm has and is being done by administering cathartics or laxatives with each meal or at irregular times. In rare conditions it is perhaps beneficial. Quick acting salines or oils should be taken before breakfast; the slow cathartics at bed time. It may be more beneficial in the case of some cholagogues to give them after the regular meals. As a rule enemas should be administered so as to anticipate the regular bowel movement. Exceptions to this rule are when bowel movement has been neglected or in case of oil enemas which are often advantageously given before retiring and retained over night.

A persistent diet of fruits, vegetables, coarse bread and a minimum of meats and sweets, with regular habits and a hopeful attitude, will overcome most cases of constipation. But unfortunately there are many, yea, the majority, who will not diet or regulate their habits, and many more who will not persist in so doing. For these innumerable sufferers we must prescribe some other means of relief. In the main this must be some form of medication. In this line, in a sense, there is no best, they are all bad. Some cases will yield temporarily to irregularly mild treatment, but the majority of cases will call for constant, large and increasing doses.

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*Read before the Muldraugh Medical Society, Elizabethtown, Ky.

A patient came to me only a short time since with almost obstipation, who had suffered with constipation for more than ten years. She said she had tried dieting till she was out of patience with it; she had taken pills until now they had very little effect. Only a short time previous to this she had taken nine cathartic pills every night for a week with no results. At that time she was taking five Indian Root pills every night, and it produced a movement every third or fourth day. She had spent a while in a sanitarium only a short time before coming to me, with very little benefit. I prescribed for her, gave some advice and got my pay. The probabilities are she got very little. I believe if this patient could be kept in a sanitarium for a sufficient time, with proper treatment and management she could be relieved, but it would have to be long enough for the patient and her bowels both to be re-educated. In a few cases enemas will give temporary and immediate relief, and occasionally should be resorted to, but the smallest amount of fluid that will give results should be used.

A very few cases can be relieved by surgery.

There is no question but there is a psychical element in many of these cases, and if you can inspire them with a more hopeful attitude towards a cure you have made a long stride towards giving them relief. We have all seen this demonstrated not only in our own practice, but under the psychological influence of irregulars, but when relieved by this method alone they usually drift back into the former condition when the spell is broken.

We should persist in talking diet and habit regulations to our patients, and even though we get little appreciation or pay for it, by and by some of us may become inspired with our own advice to the point of adopting enough of it to benefit ourselves.

Unfortunately with most of us we spend nine-tenths of our lives living to eat and only in the other brief decrepit tenth we come to realize the importance of eating to live, and are reminded that "Of all sad words of tongue or pen, the saddest are these: it might have been."

I have not suggested any special diet nor recommended any special drugs; you all know this as well and perhaps better than I do. In somewhat the language of Paul we should use many means with many "constipatients," whereby a few may be benefited.

CANINE ANTI-RABIC VACCINE—FOR THE PREVENTION OF RABIES IN DOGS.

By L. H. South, Louisville.

A practical method has been found for the immunization of dogs against rabies. Many valuable dogs are killed each year, and the lives of many persons and valuable animals are endangered by this dread disease in dogs.

By use of this simple method of immunization, rabies should be controlled in much the same way as smallpox, typhoid fever or hog cholera. In an infected area, all valuable dogs should be immunized, and all stray dogs killed. In this way, the disease should soon be under control and eventually the sources of infection eradicated.

The Canine Anti-Rabic Vaccine is made from the brain and spinal cord of rabbits that have previously been inoculated with fixed virus, and is prepared according to the method of Umeno of the Kitasato Institute for Infectious Diseases. Its advantage lies in that a single dose usually constitutes a complete treatment while at the same time, according to the records, it is harmless and efficient. This new method has been tested on hundreds of dogs without ill effect of any kind.

Umeno and his co-workers, who have now used this special canine vaccine in more than 31,000 dogs, assert that there has been a striking decrease of rabies; rabid dogs appearing only among the unvaccinated dogs. It is remarkable that of the large number of dogs vaccinated, only one developed rabies, and none suffered from infection from vaccination.

The authors of the single dose treatment believe that the immunity lasts for one year, and that revaccination will be advisable after that time.

This Canine Anti-Rabic Vaccine, so successfully used in Japan in the protection of dogs and other animals against rabies, is now available at the laboratories of the State Board of Health, and may be used to protect dogs and other domestic animals against rabies.

One dose of 5 Cc. Canine Anti-Rabic Vaccine constitutes a prophylactic treatment. For very large dogs, 10 Cc. should be given. To animals that have been badly bitten it may be advisable to give a second dose the following day. The dose for animals is determined according to the weight of the animal.

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VICE PRESIDENTS
Barnett Owen .... Louisville
W. R. Moss .... Clinton
C. R. Tanner .... Henderson
TREASURER
W. B. McClure .... Lexington
DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.
Irvin Abell .... Louisville
Lewis S. McMurtry .... Louisville
W. W. Richmond .... Clinton
ORATOR IN SURGERY
E. M. Howard .... Hazard
ORATOR IN MEDICINE
W. L. Tyler .... Curdsville
COUNCILORS
FIRST DISTRICT
W. W. Richmond .... Clinton
SECOND DISTRICT
D. M. Griffith .... Owensboro
THIRD DISTRICT
J. H. Blackburn .... Bowling Green
FOURTH DISTRICT
C. Z. Aud .... Cecilia
FIFTH DISTRICT
C. G. Hoffman .... Louisville
SIXTH DISTRICT
R. C. McChord .... Lebanon
SEVENTH DISTRICT
Virgil Kinnaird .... Lancaster
EIGHTH DISTRICT
J. E. Wells .... Cynthiana
NINTH DISTRICT
J. W. Kincaid .... Catlettsburg
TENTH DISTRICT
R. J. Estill .... Lexington
ELEVENTH DISTRICT
J. S. Lock .... Barbourville
SECRETARY-EDITOR.
Arthur T. McCormack .... Louisville
BUSINESS EDITOR
L. H. South .... Louisville
ASSOCIATE EDITORS
R. E. Smith .... Henderson
V. D. Guittard .... Maysville
P. K. Holmes .... Lexington
ASSISTANT EDITORS
UROLOGY
C. L. Wheeler .... Lexington
DERMATOLOGY
M. L. Ravitch .... Chicago
S. A. Steinberg .... Louisville
GENERAL SURGERY
F. T. Fort .... Louisville
C. A. Vance .... Lexington
L. Wallace Frank .... Louisville
PEDIATRICS
P. F. Barbour .... Louisville
OBSTETRICS
Edward Speidel .... Louisville
L. C. Redmon .... Lexington
EYE
Adolph O. Pfingst .... Louisville
EAR, NOSE AND THROAT
C. T. Wolfe .... Louisville
S. S. Watkins .... Louisville
PROCTOLOGY
G. S. Hanes .... Louisville
Bernard Asman .... Louisville
PRACTICE OF MEDICINE
P. D. Gillim .... Owensboro
R. H. Cowley, ... Berea
ANESTHETICS
W. H. Long .... Louisville
DENTAL PROPHYLAXIS
George H. Heyman .... Louisville
ANNUAL MEETING, CRAB ORCHARD SPRINGS, 1923

COUNTY SOCIETY REPORTS

LaRue—The LaRue County Medical Society held an interesting meeting here Monday, Sept. 11. Several doctors of note were on the program and were present to respond to the subjects assigned them.

Among the out of county physicians responding to the program were: Dr. A. T. McCormack, Louisville, Secretary of the State Board of Health; Dr. Lillian H. South, Dr. C. Z. and Dr. Guy Aud of Louisville and Mr. Blackerby of the State Bureau of Vital Statistics.

The county doctors present were E. S. Smith, Leigh Maupin, T. J. Poteet, D. W. Gaddie, R. H. Moss, J. C. Jones, Dr. Nicholas and J. W. Wells.

D. W. Gaddie was elected President for the coming year, T. J. Poteet, Vice President, Dr. Leigh Maupin, Secretary.

T. J. Poteet was elected delegate to the State Medical Society which meets at Paducah in October.

LEIGH MAUPIN, Secretary.

Carlisle—The Carlisle County Medical Society met with Dr. Gilliam, Tuesday, September 5th, 1922, at 11 a. m. Dr. Hocker in the chair. After divine invocation by Dr. Hocker, the minutes of the previous meeting were read and approved, with the following corrections. The memorial of Dr. J. N. McCormack was adopted at the Cunningham meeting.

Committee on Arrangements, Dr. Gilliam, reported that his wife had prepared dinner for the meeting.

J. F. Dunn read a very interesting paper on Pyelitis in Children, and its Treatment, which was discussed thoroughly by most of the doctors present. Emphasis was laid on getting a specimen of urine for chemical and microscopical examination to substantiate your diagnosis.

Adjournment for dinner.

Afternoon, 1 p. m. **Dr. Marshall** read a very interesting paper on Hip Joint Disease and Treatment. Reporting two recent cases which had a very abrupt onset, he emphasized fresh air and sunshine, with extension on affected limb, thereby separating the two inflamed surfaces, which relieved the pain. This paper was discussed thoroughly.

H. T. Crouch read an excellent paper on Multiple Neuritis in Children and Treatment, setting forth the etiology and its symptoms in a plain understanding way.

W. L. Mosby read a paper on Summer Complaint and its Treatment. The paper covered the subject so thoroughly that there was very little that could be added.

GEO. W. PAYNE, Secretary.

Muldraugh Hill—The Muldraugh Hill Medical Society met at Elizabethtown, August 10, 1922. Regular meeting called to order by President G. G. Thornton.

H. H. Hagan, Secretary-Treasurer, read the financial report for the year. The report was adopted as read by an unanimous vote.

Election of officers. John W. Wathen nominated Frank Stricker, Jr., of Louisville for President. He was unanimously elected. Dr. Strickler on taking the chair deferred the appointment of the Vice Presidents until the next meeting. H. H. Hagen was nominated for re-election as Secretary-Treasurer, and was unanimously elected.

Report of Cases:

Frank Strickler reported a case of Carcinoma of the Breast in a woman, age 81, on whom a radical operation was done. He also reported a case of multiple fracture of the skull, which recovered without operation.

Owsley Grant reported a case of Bilateral Nephrolithiasis.

Frank Fort reported a case of Fracture of Dorsal Vertebra. Laminectomy performed. Patient died three months later. Autopsy showed injury to posterior roots in lumbar region.

Wallace Frank, in discussing this case advised opening the dura at site of injury of cord, and suggested that this patient probably had degeneration at site of injury with subsequent fibrosis.

Essays:

Thos. E. Craig, Fairdale, read a paper on "Intussusception in Children," with report of case.

Leon Solomon, in discussing the case emphasized the importance of shock as a diagnostic sign, and pointed out that the tumor is not always palpable.

J. S. Lutz, emphasized the importance of the proper method of palpation, and the essayist, in closing, spoke of the importance of X-ray in the diagnosis of these cases.

J. P. Keith, Louisville, discussed "Radiation of Fibroid Tumors of the Uterus." This very excellent paper was discussed by Guy Aud, Wm. J. Young, Wallace Frank and Frank Fort.

C. W. Dowden, Louisville, gave a paper on Common Sense in High Blood Pressure."

Virgil Simpson, in discussing this paper spoke of the importance of taking the readings at the same time each day, and also the aid of Basal Metabolism in increasing our knowledge of blood pressure.

Leon Solomon states that nitroglycerin had not been given with any satisfaction, and agreed with the essayist, that salt free diet was of little value, but freedom from worry and responsibility was most important.

J. S. Lutz spoke of the importance of keeping blood pressure charts in pregnancy.

Curran Pope advocated drinking plenty of good water, and advised using salines only as an urgent and brief method of obtaining a drop in blood pressure as continuous use of salines is injurious.

C. T. Riggs, also emphasized the value of blood pressure estimations in pregnancy, and spoke of the value of digitalis in reducing the high pressure when occurring in pregnancy.

C. C. Howard, Glasgow, read a paper on "Infections of the Genito-Urinary Tract."

Owsley Grant, in opening the discussion called attention to infections of the prostate, and stated that pyelitis has probably been too much emphasized. He also stated that in cystoscopic examinations cleanliness is even more important than experience.

H. J. Farbach emphasized the importance of care in collecting specimens, also advised against frequent catheterization of the kidney.

C. C. Howard, in closing, spoke of the importance of examining the bladder, and also stated that he had not seen any value in urotropin or any other of the commonly used drugs, except 1 per cent. Silver Nitrate.

Wallace Frank read a paper on "Surgical Treatment of Toxic Goitre." Discussion opened by Guy Aud, who thinks that ligation is still the best method of estimating the reaction to operative intervention, and advised operation at peak of improvement.

John W. Wathen strongly condemned the use of the X-ray in treatment of toxic goitre, and stated that it caused the formation of adhesions, and increased vascularity of the gland which makes subsequent operations very difficult.

Virgil Simpson discussed the Functional Hypertrophies and the medical treatment of them.

J. P. Keith spoke of the value of X-ray in the treatment of some of their cases, and considers the X-ray a very valuable method of treatment in selected cases.

This was an unusually interesting session of the Society, and one of the best attended, there being about fifty members present. The papers read at this meeting will appear later in the Journal.

It is the desire of the Society to incerase the membership and attendance from the counties within this district. The counties composing the Muldraugh Hill Medical Society are, Hardin, Grayson, Barren, Warren, Hart, LaRue, Green, Taylor, Marion, Nelson, Bullitt, and Jefferson.

H. H. HAGAN, Secretary.

Index Number

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BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

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EDITORIAL

STATE DUES FIVE DOLLARS.

The members of the State Association will recall that at the Lexington session in 1921, it was determined by the House of Delegates that certain new activities would be undertaken at an estimated cost of $4,000. It was very wisely decided to pay half of this expense out of the surplus which the Council had been carefully hoarding while the other half should be met by an increase of the dues.

At the Paducah meeting the Treasurer's report showed not only the expected reduction in the surplus but that the extraordinary expense of the special session during the General Assembly and the increased cost of publishing a much enlarged JOURNAL throughout the year had also been paid. After considerable discussion the Delegates decided to continue to publish the larger JOURNAL so that all the papers sent in by the county societies might be promptly printed, as they have been for the past seventeen years, and, in addition, approved the recommendation of the Council that assistance should be given the State Board of Health in the enforcement of health and medical laws. A number of other new activities were also authorized which it is confidently expected will save our members more money each year than their membership costs in ten years.

For these reasons the House of Delegates unanimously voted to increase the dues for 1923 to five dollars. It it to be remembered that each member's JOURNAL will actually cost more than this and that our members get more for their money than in any other State. In Oregon, the dues are $20, and in a number of other states $25 and several of these do not publish official journals.

We feel confident this unanimous action of the House of Delegates, with more counties represented than at any previous session, will be as unanimously approved by the profession of the State.

AN INTERESTING REPORT.

Every reader of the JOURNAL will read with interest Dr. Stucky's report of his "Special Examination of Patients in the Eastern Kentucky State Hospital." This report was read before the joint session of the Council of the State Medical Association and the State Board of Health September 2, 1922, and received with marked enthusiasm, and it was unanimously voted that the report be placed in the hands of every physican in Kentucky; and there is no better method of securing wide attention to this important matter than by the publication of the report in THE JOURNAL.

It is a matter of regret that the report was not brought before the State Medical Association, and it certainly would have been had not Dr. Stucky been called away before the end of the session. Dr. Stucky has always taken a keen interest in conditions affecting the health of the people of Kentucky, and his work in behalf of the unfortunates in this state charitable institution should receive the plaudits of his own profession. It is expected that the result of his work in this instituton will be such as to guarantee great benefit to those suffering from these various defects.

THE SCIENTIFIC PROGRAM FOR THE ANNUAL MEETING.

The members of the Association are naturally interested in the scientific program for the annual meeting. It is pleasant to note that this interest has increased from year to year. We are now engaged in making a list of those who have contributed to the program for the past several years and this list will be published in an early issue of the Journal, showing just exactly how many times each member has appeared on the program.

Under the by-laws the President-Elect is given the responsibility for the scientific program for the meeting over which he will preside as President. Dr. Frank Boyd, of

Paducah, our President-Elect, has asked that the profession be informed that Dr. E. W. Jackson, 605 City National Bank Building, Paducah, will be the third member of the Committee on Scientific Work for the next year. The Secretary of the Association is ex-officio member.

It is suggested that those interested in the program for the Crab Orchard meeting write Dr. Jackson at the earliest date possible, making such suggestions as they think will make the program more interesting and more representative. From time to time criticism of the program is made after its publication. Many of these are just criticisms but they are not constructive because they don't help unless they are made before the program is arranged. If you have anything that you think will help to make the annual meetings more interesting, you are urged to write Dr. Jackson at the earliest possible date .

CONSULTING STAFF FOR THE STATE CHARITABLE AND PENAL INSTITUTIONS.

With the appointment of the present State Board of Charities and Corrections by Gov. Edwin Morrow have come many improvements in the care of the inmates; not the least of these is the appointment of Consulting Staffs for each of the institutions.

The State Board of Charities and Corrections through Mr. J. P. Byers, Commissioner of Public Institutions, asked the following named physicians to serve as an Advisory Staff to the Board:

Dr. George H. Day, Dr. John J. Moren, Dr. A. T. McCormack, Dr. Stuart Graves, Dr. Sidney J. Meyers, Dr. S. S. Watkins, Dr. A. L. Bass, and Dr. Irvin Abell.

Among other matters considered was the adoption of routine history forms and an effort is being made to have every patient given a complete physicial examination with Wassermann and other laboratory checks as indicated. The limited number of physicians on the permanent resident staffs of the various institutions must look after the executive and administrative work as well as care for the patients; the amount of work thereby called for is greater than can be possibly done by the available resident physicians. It is proposed that one to two internes be placed in each of the institutions whose duties be to make routine physicals, obtain accurate histories and make such laboratory examinations as can be made at the institutions. To facilitate this work a laboratory is being installed at the State Hospital for routine blood, urine and x-ray studies.

The Medical Advisory Board has suggested the appointment of a Consultant Staff for each institution, each Consultant Staff to be selected from the physicians of the county in which the institution is located. Such a Consultant Staff has been serving at the Lakeland Hospital for quite a while and consists of the following physicians:

Surgery—Dr. H. H. Hagan, alternate, Dr. Guy Aud.

Urology—Dr. Owsley Grant, alternate Dr. Claude Hoffman.

Neurology—Dr. J. J. Moren, alternate Dr. T. F. Hale.

Otology—Dr. Albert Bass, alternate Dr. M. E. Pirkey.

Dermatology and X-ray—Dr. W. J. Young.

Pathology—Dr. Morris Flexner, alternate, Dr. Jos. A. Kasper.

Medicine—Dr. Rowan Morrison.

Many physicians located near the various institutions have offered their services gratis to the different institutons while others feel that a small fee should be charged for work done. After due consideration the Advisory Staff feels that certainly the inmates are entitled to the best medical care that the profession in the State has to offer. It also feels that this attention should not be given as charity. It wishes to attempt as far as it is possible to partially repay the local staffs for their time given in making visits to the institutions and have established an honorarium of a small fee for every visit.

Honorarium—Lakeland	$10.00
Honorarium—School of Reform	10.00
Honorarium—Western Hospital, Hopkinsville	5.00
Honorarium—Frankfort Prison	5.00
Honorarium—Lexington School	5.00
Honorarium—Eddyville—Under advisement.	

This honorarium will be paid for each visit and will be based upon the visit and not the number of patients operated or examined. It will also include medical and surgical cases.

The State Consultant Staff agrees that our profession must be imbued with the spirit of charity to undertake this great work. These unfortunates must have this attention and it is up to us to give it with that spirit which in the past is typical of us.

In the near future, a staff for each institution will be selected and it is hoped that each appointee will accept and on accepting co-operate with the State Advisory Staff and the staffs of the institution to the end that modern medicine and surgery will function in the State institutions, giving of their time and experience, their ability and skill to those who are pleading in vain for help.

SCIENTIFIC EDITORIAL

ANENT "GLANDS."

We hear much of the "surgical rejuvenescence" coming from the Ring Strasse.

It is indeed a world old theme, Man longs, yearns and hopes for the unattainable—youth. Youth, the glorious age of chivalry, of romance, of virility. But man really does not yearn for youth. He does not wish to start life over again fettered and handicapped by youth's follies and youth's ignorance. He wishes to partake of a new millenium, youth with its glorious freshness and resiliency, coupled with the garnered and hoarded treasurers of knowledge and experience that age has brought. Man ever typifies Faust and Mephistopheles, for these as a team represent the desires and wishes of all past the meridian of life, youth, beauty, virility guided by the trained and logical wisdom of the years that age has acquired by much toil and sacrifice. We turn the page and again a Ponce de Leon propels his barge against the current of the Father of Waters, searching for that Crystal Spring from which beverage the rejuvenescence may come—come to the body—may erase the wrinkles and smooth the seamy parchment face of age, but leave untouched the stored wisdom of the cerebral convolutions. What a combination!—Youth and Wisdom. But such a combination were unfair and so a Providence endeavoring to equalize the Scales of Justice in a seemingly discordant world, gives much to youth, that youth in turn may give much in return. Age has its compensations and gracefully borne is entitled to precedence because of its age. And so we pass from the "infant mawling and puking in its nurses arms" through the ages to the "lean and slippered" stage to see life's close.

"Sans teeth, sans taste, sans Everything."

O! youth beware. Look not lightly and disrespectfully upon age. Remember that should you be spared the psalmist's allotted time, you will in turn know those vain regrets that strew the path that all must traverse. Old man, regret not. Gracefully accept thy inevitable lot and make of age a refuge for the young and a counsellor for the frivolous. You should be the band brake for the precipitate, the mighty dam for the turbulent, the haven of rest for those that seek counsel in the hour of tribulation. Age does not mean the race is run, but offers a field for usefulness, for comfort and for consolation barred and denied from the period of adolescence. If we can rejuvenesce, partially or *in toto*, let us do so by all means, but we will never again see the glorious, golden age through which we passed, yea, those many years ago.

CURRAN POPE.

OFFICIAL ANNOUNCEMENTS

OFFICIAL MINUTES OF THE SEVENTY-SECOND ANNUAL MEETING OF THE KENTUCKY STATE MEDICAL ASSOCIATION, HELD AT PADUCAH, OCTOBER 17, 18 AND 19, 1922..

TUESDAY, OCTOBER 17—FIRST GENERAL MEETING.

The Association met in the Baptist Church, and was called to order at 10 A.M. by the president, J. A. Stucky, Lexington, who said: The seventy-second annual meeting of the Kentucky State Medical Association is now open for the transaction of its business.

The Rev. D. P. Clapp, Paducah, will deliver the invocation.

INVOCATION BY REV. CLAPP.

Heavenly Father, we would not begin anything without invoking Thy divine blessing upon it, and now, as this assembly gathers from all over our state we pray that Thou would bless these men. We thank Thee for their God-given work. We thank Thee that Thou hast inspired them often in their journeys by day and night as they go to the bedsides of the suffering and dying. Bless them as they deliberate together. We pray Thee to bless all others who may come into this building and sit with them and hear their addresses and discussions. And grant, oh God, that all blessings may be upon this assembly. Bless the homes from which they came. Bless those whom they love and all those to whom they minister, and let Thy blessings rest upon them as they remain in our town. We ask it all in the name of the Father, the Son, and Holy Spirit. Amen.

ADDRESS OF WELCOME BY HON. CHARLES K. WHEELER, PADUCAH.

Mr. President and Members of the Kentucky State Medical Association: I cannot refrain from congratulating you upon this splendid showing of the medical profession of the state. I am sorry to contrast it with kindred gatherings in the law of which profession I am a humble votary. It seems impossible for lawyers to ever assemble in anything like a representative gathering of their profession for their own enlightenment and advancement, and I have had occasion to comment before upon the fact that the medical profession, one of the trinity of the learned professions known from the most ancient times, seems to have a livelier interest in the welfare of their vocation considered in its broadest scope.

The student of biology early encounters the war between what for a better term I shall characterize as a conflict between the intellectual and the physical. Your presence connotes an idea which I shall attempt to elaborate.

Immediately upon the most cursory investigation of biology, a multitude of questions suggest themselves to the rational mind, so it comes about that there are two distinct schools of thought among biologists. There are those who believe that life is but an expression of planetary development, and to that school a multitude of wonders are unfolded that are inextricable. Day by day we see the mysteries of the physical, the marvels unfolded by some curious circumstance or concatenation of circumstances that we cannot explain.

Of the other school of thought, in the language of the great philosopher Henderson, they believe that life is the result of purpose. Biology becomes at once the most marvelous, the most beautiful, and the most answerable argument that we are ruled by law, and immediately, when we reach the conclusion that we are ruled by law, it follows as a corollary as night unto day that there must have been and is a law giver.

The conflict of the physical with the intellectual, however, presents such wonderful and rather inexplicable conditions that it seems purpose or no purpose the conflict must go on for all time and end in the destruction of one or the other. As I see the matter, the conflict physically with the intellectual, especially by purpose, is the most beneficent gift to mankind.

The world solves one great question at a time. If some mighty giant should walk the mountain peaks and from his exalted station see the concrete thought of mankind like a picture on the wall, see some great thought they are determined to solve, some great question submitted to mankind, one by one, he would be greatly surprised.

You will recall that not so many years ago we found the world deluged in a welter of blood, man against man, father against son, nation against nation—in fact, all Europe was an army camp. Now, we know the world was then struggling for the individual freedom of mankind, shaking off the last shackles of barbarism coming from a feudal age to establish the individual liberty of mankind. No sooner had that been accomplished and stable government fixed on the earth, we found nation arraigned against nation, government against government. Blood followed blood, the earth deluged with conflict, and man stood aghast.

What was the significance of this almost universal conflict? What did it signify?

Every man's hand was thrust against the other. No one knew where to turn or what to say. No man could solve the problem then. Now, the answer is easy. That conflict was generating in the individual conscience the freedom of mankind, the freedom of conscience, so we have the right of the individual, individual liberty; we have the right of conscious freedom.

There remains one great question yet unsolved, and while the earth is not deluged in blood, we have civic conflicts far more desperate, and sometimes more bloody than the ancient wars. Few are given to see and to say what that great question is that remains yet unsolved, and that is the industrial freedom of mankind. When that trinity of great thoughts has been accomplished, man will come into his own. There will be individual liberty, freedom of conscience, and industrial freedom. When the latter problem will be solved I cannot say. I doubt if there is a man yet born so wise that he can answer that question, but while the world is solving all these questions, still running through the conflict there is the great thread of the conflict of the physical and intellectual. From the time of the human race until now it has existed. What does it signify? Let us take one or two illustrations.

Until a few years ago, in almost every nation under the sun we found slaves. One man held in bondage the body and well nigh the soul of another man. Nation after nation looked at it in horror and abolished it. One of the wisest of mankind said the institution of slavery, of all other human agencies, has done more to generate a high conception of individual liberty, a loftier ideal of civic duty, and an exalted standard of public right, than any other one thing.

Mr. Buckle in his "History of Civilization" said that no two countries under the sun are comparable. The Roman Empire, before it fell, had an individual conception of citizenship, a concrete conception of loyalty, as expressed by the governing classes. Its high sense of honor and exalted rivalry have not been equaled in the world's history, all of which grew out of the conflict of slavery. The institution of slavery never found any place in the conscience of mankind so that it could be supported, and it was finally brought to an end.

To turn to the other side, today wise men always exalt the physical as distinguished from the intellectual or spiritual.

Those who commanded great armies of soldiers at Thermopylae, at Lodi, at Austerlitz, have been made heroes and their names have gone down in history. Monuments have been erected in honor of these commanders; but where is a monument erected to the discoverer of vaccination which has prolonged human life? Where is there a monument to Jenner in any community throughout the English speaking world? How many people, not members of your profession, can tell the name of that physician who gave his life in Cuba a few years ago, and who did more good than all the military commanders through all the ages.

You may recall that Napoleon in his opening address to his soldiers before a battle said, "Soldiers, forty centuries look down upon you!"

How much more justly would be such a tribute to that man who deliberately sacrificed his life to establish for the benefit of mankind that the mosquito being once banished yellow fever disappeared from the earth. Where is the monument to that man? Leonidas had his monument; Napoleon had countless monuments erected to his memory; Washington had his, and General Joffre in time will have his. This doctor of whom I speak has no monument, and there are few who do reverence to his memory. Soldiers and commanders who destroy life are remembered by men, but those who conserve it are forgotten by men. That is the war between the intellectual and physical. Through all ages men have admired the achievements of the physical; through all the ages they have spurned and looked with contempt on the achievements of the intellectual and physical.

There is a certain degree of occultism to your profession. Why? Because you are votaries of science; you have learned to do these things in accordance with the mysterious law of nature that makes the body well, that prolongs life, but to the gaping crowd the mysterious agencies of some occult power they neither comprehend nor understand. Why is that? The general tendency of all matter, the tendency of all life is inertia. The rule of all life is advancing, and the world has advanced not because of but in spite of mankind. If it were not for a few leaders who in the silent hours of the night, who by burning the midnight oil, had discovered that fine thread of purpose running through it all, we would stagnate, die, and disappear. You find it not only in animal kind, but you find it in all animals, in all life, yet there are men who seriously contend that in this divine purpose, as shown by that law you see in the flower, in the sunshine, in the ingenuity and skill of the physician. evolution does not exist. If there is no evolution, there is no God, for evolution is God. He established the world, he brought it about, and from that conflict, step by step, man rose to a higher and a better plane, and in the furtherance of time, when the intellectual predominates, and man's unguided steps will be subject to the flood tide of reason and truth, man will have realized the importance of what he sees about him.

When the conflict between the intellectual and physical has been settled; when all men understand that wonderful law of which you are now humble votaries at the portals of the great temple of purity; when the marvelous laws of life have become known to us all, that conflict will disappear, and men will stand in the sunlight of complete intelligence, their purposes accomplished, their mission fulfilled.

As I see it, ladies and gentlmen, if you rid life of the purpose that I have attempted to portray; if you adopt the teachings of the school of the materialist and declare that this is but an expression of planetary development, or adopt the teachings of French scientists of bringing order out of chaos, the whole of life is an idle and foolish thing. Life is too great, life is too magnificent, life is too full of meaning to be idle and without purpose, and those who declare that there is no purpose, give counsel with words without wisdom in the language of the old prophet.

I know, gentlemen, of no element of our civilization deserving of higher commendation than the physician and the surgeon. They take the broken, maimed body and make it whole. They take the helpless wretch pursued by the mighty army of disease and suffering, and with the magic wand of science send him on his way rejoicing.

The physician is not quoted like a great man who said, "Take Up Thy Bed and Walk," but he is endowed by the same power; he is given the same skill that enabled that one immortal man to say, "Take Up Thy Bed and Walk." He does it with patient investigation; he does it through a mastery of the laws of nature and his familiarity with the details of the human body.

I spoke a moment ago of those who have accomplished such inestimable blessings for mankind, whose names are lost in the dust of obscurity.

How many, outside the medical profession, would understand the debt of gratitude the human race owes to Harvey. There has always been some doubt as to whether Harvey was the discoverer of the circulation of the blood, but according to the literature it is now a well established fact that he made this discovery. The discovery by Harvey was greater than a mighty army. It accomplished more good than many of the great battles. Where is the monument to Harvey? Where are the people that honor him? We speak with bated breaths of the great soldier, the great commander, but when we turn to this man who has really advanced the happiness of mankind, there is none so poor as to do him reverence. Considering the great benefit given to mankind, I believe there yet remains in the splendor of the full dawn of intellectual reason to which I have referred a time when he will come into his own and be known. Gentlemen, of all people on earth, you and your profession will contribute most to that happy day. I speak it not for the purpose of flattery; I can conceive of no profession, not barring the priesthood, that brings more happiness to mankind than your own. I know from my own experience and observation that the close relationship of life, outside immediate blood ties, is that of the family doctor and his patient, and the man who can establish himself as a good family doctor is the best man in any community. It does not make any difference if you are a simple country surgeon, with saddle bags or a jitney, and go out into the night in the cold or rain, or in the sunshine by day, your presence is a blessing, and the very fact that the physician is there brings happiness and confidence to those about him.

I recall a number of instances now of having seen men of position and character in this community gasping violently in the last agonies of impending dissolution, and I have seen the surgeon with his lancet, with a bold stroke which would bring terror to the heart of the uninitiated, apparently emasculate this weakened and gasping body, but after a few days, although a little pale and a little staggering, the patient would pick up and finally recover.

Your vocation is a great one. You have reason to be proud of being members of it. It is for that reason, gentlemen, that every community, where you bring your conventions, is honored by it, and not only in the name of the local physicians of Paducah, but in the name of Paducah itself, I welcome the members of the Kentucky State Medical Association to this city. (Applause.)

RESPONSE TO THE ADDRESS OF WELCOME BY C. C. CARROLL, WHITE MILLS

Mr. President, Members of the Kentucky State Medical Association, Ladies and Gentlemen:

I shall only occupy a few minutes of your time. At the outset, I want it distinctly understood that I am not competent to respond to the eloquent address of Mr. Wheeler. I do not feel competent to discuss his brilliant thoughts in a way which would be a befitting answer to his address.

When I was asked to respond to this address of welcome, I began to inquire about what and where is Paducah found? I wanted to know something about Paducah after I decided to accept this honor, and I began to think about Paducah citizens, of its learned and influential men. I thought of Congressman Barkley who, I have no doubt, will be our next Governor. (Applause.) Hardin County feels that way about it. After I had heard him, and after I had learned what a fine city you have here, with a population of 30,000; after I had seen and heard Honorable Charles K. Wheeler, who is one of the best orators in western Kentucky, I knew at that time, folks, I was in too fast a company, so to speak. (Laughter.) But I was just like the proverbial old darky who, when asked if he could change a fifty dollar bill, said, "No, sah, I can't, but I appreciates the compliment just the same." (Laughter.)

My first impression, when I landed in Paducah yesterday afternoon, was that the Kentucky State Medical Association had selected the right place. I began to see this spirit of welcome manifested in every way on the faces of the citizens, and even the windows in this town were placarded with words of welcome to the doctors of the Kentucky State Medical Association, and in every possible way I began to notice the warmth of this welcome to Paducah.

This morning one of the local newspapers gave quite a long and extensive article on the proceedings of this Association yesterday, so I am thoroughly convinced from every standpoint that the citizens and doctors of Paducah have done their part in welcoming us here.

You, the physicians of Paducah, are entertaining country doctors, a large per cent of them, and in the report of yesterday's proceedings it was stated that there is a movement on foot to stop the business of specializing, particularly on the part of young men leaving medical colleges and then going into specialties. In other words, we should get more men to practice medicine in the rural communities of Kentucky. (Applause.)

We physicians in the country have to rely on our own resources and fight our own battles in connection with the practice of medicine. If we get into trouble we try to get out of it the best we can. We get weary sometimes and feel like giving up, but when we come down here and attend a big convention like this, of which there is no better anywhere, the spirit of the thing does us good, and we feel in returning to our homes like taking up our work with renewed energy. Here we shake hands with classmates, we make new acquaintances, and renew old ones.

We get tired looking at the coated tongue, feeling the bounding pulse and fevered brow. Possibly you do not understand how well we enjoy the social spirit of these meetings.

Just one thought only, advanced by Mr. Wheeler will I attempt to discuss. It is a fact that doctors do not have monuments of stone or of marble erected to their memories. It is a further fact that there is no tall slab of granite erected to Pasteur, to Koch, to Harvey, and any number of others I could mention, but let me say to you, our monuments are those of the heart, and are monuments of love of those whom we serve. We do not need monuments of marble at all.

Now, folks, I have nothing more to say except that in the name of the seventy-second annual convention of the Kentucky State Medical Association, from the deepest part of my heart, I thank you for this cordial welcome. (Applause.)

At the conclusion of the response to the Address of Welcome, Dr. Stucky said: We have listened to this splendid address of welcome and to the response, and now comes the valedictory. I have no valedictory to make. I do not feel that I am quitting at all. In my President's Address I said that I did not feel that I was singing the song of the swan, nor do I feel in handing over the gavel to my successor that I am delivering a valedictory. I believe that history will record that this meeting in Paducah this year, in 1922, will be in many respects one of the most memorable of all the meetings of the Kentucky State Medical Association. I believe that the program which follows this morning will emphasize that statement.

I congratulate you, gentlemen of the Association, on the man whom you have selected to lead you this year. I will not give you my reasons why. It is not the fact that he comes from Louisville; it is not the fact that he is a skillful surgeon, there are other reasons, and I believe that Dr. Frank will show his leadership and will prove to be the man behind the gun, working in the trenches, and this year he will accomplish a greater work for the advancement of medical science in Kentucky by doing a bigger work for the people of Kentucky than any one year in the history of this Association.

It is now my great pleasure to hand to Dr. Frank the gavel and to introduce to you your new President. (Applause.)

Dr. Frank then delivered his address.

MEMORIAL SERVICES FOR DR. J. N. MCCORMACK

THE PRESIDENT: It is we think most appropriate and eminently right and proper that this first session should be given over as a memorial meeting to our great leader who has passed away, Dr. J. N. McCormack.

With this idea in mind, a number of addresses have been arranged. The first by J. A. Stucky, Lexington on "Dr. McCormack as a Man."

Before delivering his address, Dr. Stucky said: Lest I consume too much time or more than you have allotted to me, I shall stick very closely to my manuscript in which I have very briefly, very affectionately, referred to our departed leader.

It was at a very gala occasion in Washington City, at a banquet on the night of the fourth of May, seated between Surgeon-General Cummings and General Work, I heard the news of the death of J. N. McCormack. I cannot begin to tell you how I felt when Dr. Work said, "It is too bad we had to lose J. N. McCormack as we did."

I left the banquet table, hastened to the telegraph office at the hotel, and in the poverty-stricken English language that I possess said all I could to the broken-hearted family.

Our profession as a profession is linked with that of the Divine, in that the man of Galilee was called The Great Physician, and one of the greatest apostles was called The Beloved Physician, and yet notwithstanding that relationship and association; notwithstanding these historic facts and our progress, our development, we cannot tell today why, when or where the vacant chair will be tomorrow, and that is one of the tragedies that you and I have to face.

When we have done all that human skill can do; when we have given all that the human heart and mind can give, when the tragedy comes; whether it be father, mother, or child, and we are asked, "Doctor, why? Why?" We cannot answer the question. We tell them that death is as natural as life and just as good, but we must give at that time more than philosophy: we must give hope and cheer. (Dr. Stucky then delivered his address.)

D. M. Griffith, Owensboro, spoke on "Dr. McCormack n His Relation to the Medical Profession."

Hon. J. C. W. Beckham, Louisville, spoke on "Dr. McCormack in His Relation to the General Public."

Charles A. L. Reed, Cincinnati, Ohio, spoke on "Dr. McCormack in His Relation to the American Medical Association."

At the conclusion of the addresses, J. S. Lock moved that the members of the Association stand with bowed heads for a minute in sacred memory of our beloved leader, Dr. McCormack.

Seconded and carried.

In accordance with the motion, the members and visitors arose and bowed their heads in silence, after which President Frank said:

This is one of the most memorable sessions this Association has ever held. It will go down in the annals of this Association. I would like to see these addresses published in one brochure. So much has been said that I feel I cannot even add a word to it.

The oration in surgery being the next order of business, and the hour being rather late, W. F. Boggess moved that it be postponed until 8 P.M. and made the first order of business on reconvening.

Seconded and carried.

On motion, the Association adjourned until 2 P.M.

First Day—Afternoon Session.

The Association reconvened at 2 P.M. and was called to order by the President, Dr. Louis Frank.

Symposium on Pneumonia

J. H. Pritchett, Louisville, read a paper on "Diagnosis and Treatment of Broncho-Pneumonia."

Frank Fleischaker, Louisville, followed with a paper on "Diagnosis and Treatment of Acute Lobar Pneumonia."

These papers were discussed together by Drs. Simpson, Anderson, Stevens, Barbour, Horine, Blythe, Prather, and in closing by the authors of the papers.

John Price, Louisville, read a paper on "Surgical Consideration of Empyema," which was discussed by Drs. Blackburn, Wathen, Sherrill, Fort, Jenkins, Willmoth and Abell, after which the discussion was closed by the essayist.

J. T. Reddick, Chairman of the Committee of Arrangements, stated that the McCracken County Medical Society and citizens of Paducah were delighted to have the members of the Association again in their midst.

He announced that the Elks Club next to the place of meeting would be open at all times and the members would be welcome.

J. G. Carpenter, Stanford, read a paper on "Hill-Billy Abdominal Surgery," which was discussed by Drs. McChord, Sherrill, and in closing by the essayist.

Charles K. Beck, Louisville, read a paper on "The Dead Line," which was discussed by Dr. Blackburn and in closing by the essayist.

On motion, the Association adjourned until 8 P.M.

First Day—Evening Session

The Association reconvened at 8 P.M. and was called to order by President Frank.

J. Garland Sherrill, Louisville, delivered the oration in surgery. He selected for his subject "Industrial Accidents."

Following the oration in surgery, W. W. Richmond was escorted to the platform, after which D. M. Griffith, Owensboro, addressed Dr. Richmond as follows:

Dr. Richmond: I have the honor to express to you the good wishes and to convey to you the high regard and esteem of the profession of Kentucky, in presenting this token (handing Dr. Richmond $500.00) as their appreciation of your long, unselfish and efficient services in their behalf. Whatever your lot may be, whether to plod along in that servitude from which mankind has not yet been freed, or whether you walk the path of peace, it is the wish of the doctors of Kentucky that your remaining years be happy.

I am commissioned to request that you so invest this sum that you can hand it down to your children's children as a legacy beyond compare and to serve to show them that among their progenitors was one who was a man among men, and I beg, sir, to express the further personal hope that it may prove as much to you that it will vouchsafe all the joys of this life and the blessings of the life hereafter. (Applause.)

Dr. Richmond, in accepting the gift presented to him, feelingly responded as follows:

I want to express my thanks to the members of the Kentucky State Medical Association and to you, ladies and gentlemen, for this gift and the honor that has been bestowed upon me. I do not think I deserve it. The work I have done for my profession has been first and foremost, what it may have been, to follow in the line of duty so far as I could and so far as I have been able to do, not seeking honor or glory.

Being a poor boy and being admonished by a number of friends I was not able to undertake what I wished to do, to study medicine. However, the only individual who encouraged me was my sainted mother. She said, "My son, follow the vocation you desire, and I will see you are prepared to do it." I took her word, and her Christian influence encouraged me in the vocation of life which I had chosen most above all other things. I struggled through the course of medicine and graduated from the old University of Louisville. Since that time, ladies and gentlemen, my work has been accomplished.

Whatever I have accomplished in my profession during the past thirty years, I owe it to a man whom I loved better than any man in the world outside the members of my own family, not excepting my father, because I never knew him; I was only a year old when he died. But I did love this one man. He was the incentive that led me to do the work I have done in the past twenty-five years.

It was one of the pleasures of my life to be influenced and advised by him in doing the public health work I have done. That gentleman was the remarkable J. N. McCormack, a man whom I loved better than any man in the world except my father.

I have no doubt J. N. McCormack has gone to his reward, and I am going to follow him. I have made up my mind to follow him. I expect to see him again, because I know he is reaping his reward. (Applause.)

THE PRESIDENT: We have with us a gentleman, a Kentuckian born and bred, who is now serving his country with honor in one of our distant possessions, and it is with great pleasure that I present him to you tonight to deliver the public address. I do this with great pleasure because I have a special pride in what he has achieved. I have known him and his family since his early boyhood. I saw him through his studies in medicine. He served with me as an intern at the City Hospital, and I hope I may be forgiven the pride I have in his accomplishments if I say possibly I have in some measure helped him in the work he has done.

Ladies and gentlemen, I present to you D. P. Curry, Assistant Chief Health Officer, Canal Zone, Panama, who will now deliver a public address.

Dr. Curry then delivered his address, at the conclusion of which President Frank said: I am sure we have all profited by the lessons Dr. Curry has given us and of what has been done in Panama by sanitary methods.

If there is nothing further to come before the meeting, the Association will stand adjourned to meet at 9 A.M. tomorrow, Wednesday, October 18.

Accordingly, the Association thereupon adjourned.

WEDNESDAY, OCTOBER 18—SECOND DAY—MORNING SESSION

The Association met at 9:20 A.M. and was called to order by the President.

Willis C. Campbell, Memphis, Tennessee, read a paper (by invitation) entitled "Arthroplasty with Special Reference to the Elbow."

This paper was illustrated by motion pictures, and was discussed by Drs. Owen, Trawick, Strickler, Gaither, after which the discussion was closed by the essayist.

James W. Bruce, Louisville, read a paper on "Fermentative Diarrhea."

Curran Pope, Louisville, read a paper entitled "Bacteriology and Treatment of Diseases of the Colon."

These two papers were discussed together by Drs. Sheldon, Morrison, Dowden, and Hanes, after which the discussion was closed by the authors of the papers.

Bernard Asman, Louisville, read a paper entitled "The Rectum in Its Relation to Digestive Disorders," which was discussed by Drs. Hanes, Carpenter, Pope, and in closing by the essayist.

E. B. Bradley, Lexington, delivered the oration in medicine. He selected for his subject "Some Observations on Group Medicine."

On motion, the Association adjourned until 2 P.M.

SECOND DAY—AFTERNOON SESSION

The Association reconvened at 2 P.M. and was called to order by the President.

Horace T. Rivers, Paducah, read a paper on "Intestinal Obstruction."

E. S. Allen, Louisville, read a paper on "Resection of the Intestine."

These papers were discussed jointly by Drs. Vance, Boyd, Wathen, Hume, McChord, Carpenter, Aud, Carroll, Willmoth, Zimmerman, and Grigsby, after which the discussion was closed by the essayists.

J. S. Chambers, Paducah, read a paper on "Immunity and the Infectious Diseases," which was discussed by Drs. Dowden, Pope, Engelbach, Simpson, and in closing by the essayist.

R. Hayes Davis, Louisville, read a paper on "The Physiology of the Endocrine Glands."

William Engelbach, St. Louis, Missouri, read a paper (by invitation) entitled "The Possibilities and Limitations of Endocrine Therapy."

These two papers were discussed together by Drs. Dowden, Leavell, Simpson, Pope, and in closing by Dr. Engelbach.

R. Julian Estill, Lexington, read a paper on "Status Thymo-Lymphaticus with Report of Twelve Cases," which was discussed by Drs. Willmoth, Engelbach, and in closing by the essayist.

J. W. Morris, Louisville, read a paper on "Arterio Sclerosis and Hypertension."

F. Askenstedt, Louisville, read a paper entitled "Recent Researches in Blood Pressure."

These two papers were discussed together by Drs. Jenkins and Simpson.

On motion, the Association adjourned until 9 A.M. Thursday, October 19.

THURSDAY, OCTOBER 19—THIRD DAY—MORNING SESSION

The Association met at 9:30 A.M. and was called to order by the President.

N. W. Moore, Cynthiana, read a paper entitled "Abortion, Criminal and Inevitable."

L. C. Redmon, Lexington, followed with a paper on "Therapeutic Abortion."

These two papers were discussed jointly by Drs. Aud, Shaw, Miller, Carpenter, Anderson, Thornton, and in closing by the authors of the papers.

S. P. Oldham, Owensboro, read a paper entitled "Sacral Anesthesia in Obstetrics," which was discussed by Drs. Thomas, Jones, and in closing by the essayist.

Oscar O. Miller, Louisville, read a paper on "Juvenile Tuberculosis," which was discussed by Drs. Bates, Price, Blythe, and in closing by the essayist.

B. F. Zimmerman, Louisville, read a paper entitled "Surgical Diagnosis and Treatment of Hydrocephalus."

Walter Hume, Louisville, read a paper on "Local and Regional Anesthesia in Major Surgery," which was discussed by Wallace Frank.

C. G. Hoffman, Louisville, read a paper entitled "The Value of the Cystoscope in Disease of the Upper Urinary Tract."

Guy Aud, Louisville, read a paper on "Corrective Rhinoplasty," which was illustrated with lantern slides.

The paper was discussed by Drs. Graves, Hume, Miller, and in closing by the essayist.

Stuart Graves, Louisville, read a paper on "Blastomycosis in Kentucky," which was illustrated with lantern slides.

The paper was discussed by Woolfolk Barraw, Miller, Aud, and in closing by the essayist.

A paper by Vernon R. Jones, Shelbyville, entitled "The County and Community Diagnostic Laboratory," was read by title and ordered published in the proceedings.

As there was no further business, scientific or otherwise, to come before the meeting, on motion of Oscar O. Miller, which was duly seconded and carried, the Association adjourned to meet at Crab Orchard in 1923.

ARTHUR T. MCCORMACK, M.D.
Secretary.

Grafts of Long Bones and Joints.—Fieschi reviews 277 bone grafting operations on the legs during the last twenty years, as published by various writers, in addition to his own experience and that of Putti. The patient's own tibia was used in 74 cases and an alien tibia in 18; own fibula in 109, and alien in 19; ivory or animal bone in 46, and a metal implant in 2.

The outcome was not so favorable when tient's own fibula was used as a substitute after resection of a tumor in the humerus, ulna or radius. The outcome was not so favorable when the weight had to be borne on the implant, as when used to substitute the femur. The vitality of the implant was shown in certain cases by the healing of a fracture in it. When used to substitute the tibia, dependable results were obtained only with a pedunculated transplant The upper femur can be effectually substituted with a similar bone from another subject, provided this bone had been amputated only a few hours before and been kept properly, not boiled, and not placed in the autoclave. The outcome has also been good when the knee was removed on account of tuberculosis or ankylosis and substituted by a recently amputated knee joint with capsule, menischi and ligaments.

Attempts to sterilize the bone to be implanted devitalize it, and it is cast off in scrapes as a foreign body. This was shown impressively in a personal case described with the roentgenograms taken at intervals during forty months.

OFFICIAL MINUTES OF THE HOUSE OF DELEGATES OF THE SEVENTY-SECOND ANNUAL MEETING OF THE KENTUCKY STATE MEDICAL ASSOCIATION, HELD AT PADUCAH, OCTOBER 16, 17, 18 AND 19, 1922.

October 16—First Meeting of the House of Delegates.

The House of Delegates met in the Baptist Church and was called to order at 2:30 P. M. by the President, J. A. Stucky, Lexington.

The report of the Committee on Credentials was called for.

R. C. McCHORD: Your Committee on Credentials have nothing to report except to say that instances have occurred where the county secretaries have not made a report of delegates to the Secretary of the State Association, and this has created some confusion, for the reason that delegates have come on their own statements until otherwise approved.

THE PRESIDENT: What will you do with this report?

It was moved and seconded that it be received and accepted. Carried.

The Secretary called the roll and announced a quorum present.

THE PRESIDENT: The next order of business is the reading of the minutes of the 1921 meeting.

THE SECRETARY: These minutes were published in the Kentucky Medical Journal, November, 1921, page 695, and have been in the hands of the members since last year. If you want them read, I will read them, but it will take about an hour and a half to do so.

HORACE T. RIVERS: I move that we dispense with the reading of the minutes of the 1921 meeting.

Seconded and carried.

THE PRESIDENT: The next thing in order is the report of the Committee on Scientific Work by Louis Frank, Chairman.

LOUIS FRANK: The Committee on Scientific Work reports the Program as the result of its labors or rather I should say of the efforts of Dr. Phillip F. Barbour, who with the Secretary and myself as President-Elect compose the committee. So far as I am aware the arrangement of this program constitutes the entire scope of the duties delegated to us

In view of the fact that the President-Elect is, under the By-Laws of our society, the chairman of this committee I would respectfully suggest that the Secretary send him a notification thereof immediately thereafter adjournment of the meeting at which he is chosen, and I would further suggest that he be charged with full responsibility for the program and the selection not only of the topics for discussion, but for those who are to present the papers. I make this recommendation as a result of my experience with the arrangement for the present session. The officer to preside will under such arrangement have a most important duty to perform and also would assume full responsibility for his own meeting and necessarily any criticism which might arise as a consequence of a poor scientific session. Such an arrangement would I think stimulate each incoming president to surpass, if possible, in scientific presentations the offerings of his predecessor.

I would therefore suggest that Chapter VIII, Section 2, of the By-Laws be changed to read, line 7 of this Section after the word association, "the chairman of the committee being charged with full responsibility for the program." The committee shall determine, etc.

This gives an opportunity for full discussion in the committee, yet puts the responsibility where, it seems to me, it should rightfully belong and upon the one man who should have the greatest interest in having the scientific part of our meetings not only successful, but of the very highest order.

(Signed) Louis Frank, President-Elect,
Chairman Committee Scientific Work.
Philip F. Barbour,
Arthur T. McCormack,
Secretary.

THE PRESIDENT: You have heard the report of the committee, what will you do with it?

J. W. KINCAID: I move that it be accepted.

Seconded and carried. (Amendment laid over until next meeting).

J. W. KINCAID: I would like to ask the Secretary if there has been any change made in the By-Laws in regard to the Program Committee.

THE SECRETARY: No, sir.

J. W. KINCAID: Formerly the President-Elect was supposed to be the Chairman of the Program Committee, and it became his duty to see the program was ably presented at the meeting over which he was to preside, and if that has been repealed I would like to move that it be reinstated.

THE SECRETARY: It has not been repealed. The President-Elect is ex-officio Chairman of the Program Committee.

J. W. KINCAID: That is all the power he wants to have, to fix the program by consultation so that it may be acceptable to him.

THE SECRETARY: The By-Laws provided that the President-Elect shall be Chairman of the Program Committee. The President, however, appoints the third member, and that third member unusually does the actual work on the programs. That is ordinarily done with the approval of the President-Elect.

J. W. KINCAID: When I was president I arranged the program with the assistance of the members throughout the State. I mapped out a definite plan and the men presented the subjects which I had selected.

THE PRESIDENT: I am very glad that point has been mentioned by Dr. Kincaid, because I confess I had overlooked it. I did not know that at all. I think the point is well taken and we should be more familiar with the details of the rules and regulations, the By-Laws and Constitution.

The next order is the report from the Committee on Arrangements, J. T. Reddick, Chairman. (Not present).

Under reports of officers, your President has very little to report. I have visited very few places. I have been asked to visit two or three places, but found it impossible to do so because of conflicting engagements. These places were in the lower part of the State. I believe in central Kentucky matters and conditions are better than they have been for years. More interest is being shown than formerly in the county society meetings.

The next report is that of the Secretary.

THE SECRETARY: I have only to report that the members of county societies in almost every section of the state are going through a period of greater and livelier activity since the war. I have had the prvilege of meeting with some fifty county societies during the year, and almost all of them have taken on a fresh lease of life. We have a number of other societies that are still nominal, but the work is being pushed as rapidly as possible in several of the councilor districts, and is nearing completion. In some others it is not complete, and it behooves us all to see that all these organizations are completed and are again working in every county in the State.

THE PRESIDENT: Treasurer's report.

THE SECRETARY: The report of the Treasurer is published in the Kentucky Medical Journal, October, 1922, page 676, and the members are familiar with it. The increased cost of the Association during the year was due to the expenses of the Lexington meeting, the expenses of the delegates having been paid by the State Association. At the Lexington meeting the dues were increased to four dollars with the understanding that we would use our surplus this year, if necessary, and this has been found necessary, for the first time, in seventeen years.

THE PRESIDENT: What will you do with the report of the Treasurer?

THE SECRETARY: It should be referred to the Auditing Committee.

THE PRESIDENT: Report of the Council.

R. C. McCHORD. The Report of the Council has been published in the October (1922), issue of the Kentucky Medical Journal, and it is unnecessary to read it here. The Council will have some other reports to make during the meeting. This report will be continued.

THE PRESIDENT: Report of the Councilors by district.

Report of Councilor of the First District.

W. W. RICHMOND: We have in the First District twelve counties; Ballard, Caldwell, Calloway, Carlisle, Fulton, Graves, Hickman, Livingston, Lyon, Marshall, McCracken and Trigg. Eight of the counties report 100 per cent of eligible doctors in these counties. I want to report for McCracken County 90 per cent. Trigg and Livingston Counties have a fine representation and are not very much behind. Trigg County has every doctor in the county. Nine of the counties are 100 per cent. Livingston is poorly represented, with one or two members I think. We have 22 members over what we had a year ago. I understand from the Secretary that two other members have come in since, and are not on the record, making in all 22 more members this year than last year.

In the First District we have taken on a new life. I have made five or six visits and have corresponded with all the secretaries of the societies two or three times. We are in a better condition in the First District now than since I have been a member of the organization. This, in brief, concludes my report as Councilor of the First District.

REPORT OF COUNCILOR OF THIRD DISTRICT.

JOHN H. BLACKBURN: During the year I have visited every society in the district except two, Barren and Butler Counties.

The Hart County Medical Society held an open meeting at the Memorial Consolidated School near Canmer, there being some 700 people present. On a recent trip through Cumberland, Metcalfe, Monroe and Allen Counties, three public meetings were held. These meetings were attended in association with Drs. McCormack and Blackerby of the

State Secretary's office. At each of these public meetings, public health matters in Kentucky were discussed, and we are sure that each community has gotten marked benefits from them.

At the meetings with the remaining societies purely scientific matters were discussed, particularly cancer and its prevention. One of the most interesting of these meetings was the one recently attended at Hopkinsville. The doctors of the surrounding counties in Kentucky and Tennessee being guests of the Christian County Society at its annual meeting. We were fortunate in having present at this meeting Dr. Frank, our President, who delivered an address.

We regret to report that in practically all of the societies there are a few doctors who have not joined, although a letter has been written to each non-member urging that he affiliate himself closely with his county society. However, we have been pleased in our visiting the various societies to find a spirit of fraternalism and cooperation that indicates that the heart of the profession is in the right place. We shall endeavor next year to visit every society in our district, and hope to be able to report a larger membership.

REPORT OF COUNCILOR OF FOURTH DISTRICT.

C. Z. AUD: I wish to report the condition of and work done during the last year by your Councilor of the Fourth District. Thanks to Dr. Lillian South of the State Board of Health and quite a lot of the doctors of the State, we were able to offer a splendid program and carry out most enthusiastic councilor meeting in each of the counties. I am sure my district was never prepared for better work in the near future. I found the profession in a very lethargic condition. However, things were quite aroused by the reading of most excellent papers presented by the essayists, thanks to Dr. South and the essayists.

We fell two short in registration, and unless they have made their appearance at the registration booth at this state meeting, I will have to send out a search warrant.

REPORT OF COUNCILOR OF THE SIXTH DISTRICT.

R. C. McCHORD: I have very little to report for my district, except it is the usual average. I think nearly all the eligible men in my district are members of their county societies, with few exceptions that have been neglected. I must say that our county societies are working fairly well, not as well as they should work, and I hope that in the next year I will have a better report to make of all these societies. Practically every member in my district is a member of the county society who is eligible.

REPORT OF COUNCILOR OF THE EIGHTH DISTRICT.

J. E. WELLS: I herewith submit my report as Councilor of the Eighth District. There are 240 members of the county society of the Eighth District, an increase of 4 over last year. Some counties show an increase, and some a decrease.

Bourbon County has a membership of 20 and has had 9 meetings and 10 papers. The interest is only fair. I attended one of their meetings, and was encouraged by the attendance and interest taken.

Bracken County has no organization. I have made a number of attempts to get them started off, but they never had another meeting after they organized. This year 5 have paid their dues.

Campbell-Kenton County has a membership of 94. They have had 10 meetings during the past year with 14 original papers and 20 case reports, and an average attendance of 25. Much interest is being taken by the members.

Fleming County has 13 members, 3 non-members, and 3 retired physicians. They had 10 meetings during the year, 34 case reports and an average attendance of 7.4. The interest is improving.

Grant County has 15 members and 2 non-members. They have had only 4 meetings during the past year with 3 papers and 34 case reports. Interest is not good.

Harrison County has 21 members, and has lost one by death, and one by removal. They have had 13 meetings, 12 papers and 42 case reports. The average attendance was 14.75. Interest is good—no better society in the state.

Jessamine County has 10 members and 3 non-members. They do not meet regularly, and the interest is not good.

Mason County has 16 members and 17 non-members. They meet semi-monthly, except during the hot months. They had 6 original papers and 100 case reports during the past year. Interest is improving. I cannot understand why 17 Mason County physicians are not members of their county society. They should get together. Mason County should have a splendid society.

Nicholas County has 9 members and do not meet regularly. Interest is not good.

Pendleton County has 11 members and 3 non-members. They have had 8 meetings and 5 papers. I have attended two of their meetings in an effort to increase interest. At one time Pendleton County had a splendid society, and I have made a special effort to increase their interest, but with not much success.

Robertson County has 2 members and 2 non-members, and do not meet regularly.

Scott County has 16 members and 1 non-member. They have had 5 meetings, 5 papers and 3 case reports during the year. Their average attendance is 7. Interest is not so good.

Woodford County has 7 members and 6 non-members. They do not meet regularly, and the interest is poor.

I am sorry to have to report so little interest taken in so many societies, but it seems impossible to create an interest in some of the counties.

REPORT OF COUNCILOR OF NINTH DISTRICT.

J. W. KINCAID: We have a good organization in the Ninth District. The report for this year would disclose more members if it had not been for the coal strike which affected several counties in my district quite seriously. The work closed down and some of the doctors moved away and permitted their dues to go unpaid. I feel quite sure that some doctors have come into the district who had been there before. Most of the men that are eligible to membership are with us. There is a discrepancy to be found in the number of doctors in my county and the number of doctors who belong to medical societies. Of the number of doctors who have not been reported dead, some are out of practice, and some for certain reasons have not been attending the meetings of the society, or have been reluctant in coming. Of the eligible members, most of them are in the organized societies.

THE SECRETARY: Under the leadership of Dr. Moore an all time health officer was created in Boyd County two years ago. Within the last two weeks there have been similar all-time health departments organized in Floyd and Johnson Counties through the efforts of organization in these counties. This makes the Ninth District the best organized district, from a public health organization standpoint, in the State of Kentucky, and Dr. Kincaid is to be congratulated on that ground.

REPORT OF COUNCILOR OF THE TENTH DISTRICT.

R. JULIAN ESTILL: Numerically the Tenth District is one of the largest districts in the state. In one of the counties one man constitutes a whole county; in another, 2 men; in another 2 men. Several of them have three or four, and in one or two others five is the number of doctors in the county. It is impossible in a county with as small a number of doctors as this to have an organized medical society, but these men are paying their dues, are receiving the Kentucky Medical Journal, and consider themselves real members of our Association.

I am still working on Estill County, and as I promised you last year, I would not be proud of my namesake until I had organized a society in that county. I have not been able to accomplish it, but I am still working on it and hope next year we will have one.

Fayette County has a flourishing society. The spirit there is well nigh perfect. There are no factions; there are no disagreeable relations between the doctors, and at every meeting we have a good live program, with interesting and profitable discussions, and the best of feeling is prevailing.

In a few other counties in my district, notably Clark County, I have dealt with them with gloves from the time I made an arrangement with them until there was a prospect of having a consultation with the Secretary and Dr. Stucky. We possibly have to go after them without gloves. There is an ugly condition existing there. There are two or three factions. These factions change from time to time, and we have not been able to get any kind of organization in that County. I am sorry to make a statement of this kind, but up to the present time we have not been able to accomplish anything, and I hope with the aid of Dr. Frank and Dr. Stucky we may be able to settle this.

The Tenth District shows more members than last year. Most of it is a rural community. In the mountainous counties in which there are coal mines the miners are coming and going all the time.

One of the best societies is Perry. I have been there twice during the year, and each time they would have something like 25 members present. They have had excellent programs and general discussions on live topics. Except for the deplorable condition in Clark County, there is nothing of particular interest in the Tenth District to report.

REPORT OF COUNCILOR OF ELEVENTH DISTRICT.

J. S. LOCK: I am very glad to be able to report a substantial increase in membership in the Eleventh District. I believe the report shows an increase of 32 members. There has been an increase in membership from this district every year since I have been councilor. A number of men in the district have renewed their membership since the Journal was published, giving the figures on the first of September. To the best of my knowledge, there are 15 men in the entire district who are eligible that are not members of the State Association. I have attended all the county societies in my district except two. With some I have been in attendance as many as four meetings during the year. The work of the societies is not up to the standard that is maintained by various societies, but it is much better than it was last year and the year before. I believe interest is increasing, and you may hope for a better report in the year to come.

THE PRESIDENT: The next thing in order is reports of delegates by counties.

THE SECRETARY: As there are a great many delegates not present and have written reports, I move that these reports be incorporated in the proceedings without being read.

Seconded and carried.

ADAIR COUNTY MEDICAL SOCIETY.

W. J. FLOWERS: There are 12 doctors actively engaged in the practice of medicine in the county, one osteopath and one lady belonging to no cult, giving magnetic or vibratory treatment. Seven of the number belong to the society; the eighth member, O. P. Miller, is now located in Evansville, Indiana, in the Government Service. I know of no reason why the other five members of the profession in the county do not belong to the society unless it is due to the society holding no meetings except when the Councilor visits it annually and new officers are elected for the ensuing year. That seems to be the extent of interest taken in the society in this county.

There is perfect harmony among the doctors and good will toward the state and county organizations prevails with the nonmembers, all of whom have, off and on, held membership. I know of no community in this county suffering for want of medical attention, although there is coming a time it seems, not so far off, when the membership will be passing along with none in view to take their places. Within the period of twelve years that I have been practicing medicine Adair County has lost 17 doctors, 11 by death, 3 non-active, and 3 removed from the county. Only one has located in the county in this time. Seven of the 12 remaining are now beyond the age of 55. No thinking man will argue the question of higher standards of pre-medical education, yet from a practical viewpoint you have to go to the country to get country doctors. The trained country school teacher, who has saved up a few hundred dollars, is the best bet. Let him enter a medical school without further training, and in all likelihood he will select a country community in which to practice. We will never suffer for the need of highly trained technicians, laboratory men, diagnosticians, surgeons, etc., for ambitions to do and present day facilities will take care of that. But practitioners of medicine must not be mere pieces of mechanism. They must be thinkers, human throughout, and conscientious. Man is the architect of his own destiny and a grant to practice must be unhampered by legislation that would stifle any attempt to do greater things. In saying this I have in mind suggestions that have been made, now and then, about degrees and the limitation of the practice of medicine and surgery.

ALLEN COUNTY MEDICAL SOCIETY.

A. O. MILLER: We have at present the following active physicians in Allen County:

J. E. Pace, W. E. Willoughby, C. A. Calvert, H. M. Meredith, G. W. Keen, P. G. Graves, Lattie Graves, Willie Harris, A. J. Dixon, C. W. Hollin, Lon Whitlow, R. W. Cook, A. O. Miller, Marcellus Whitney, John F. Alexander.

I am not able to advise you just why the last two names listed do not belong to the county or state society. I am informed that they do a reasonable practice for men of mature age. We have no physicians in the county that have retired from practice. It seems that the doctors are equally divided over the county. There is not any place or location in this county at present. As to roads there has been a great improvement for the last few years. Our schools are not what they should be. I am proud to say that we haven't any illegal practitioners in the county society.

BULLITT COUNTY MEDICAL SOCIETY.

T. E. CRAIG: We have 9 members, 3 of whom live in Jefferson County. We have 3 men who are eligible for membership, but they will not join despite the most earnest solicitation. One of these men is superannuated, but the other two are young men and will not come. We have one unlicensed practitioner. We have lost one man by removal, Dr. Dodge. We have 6 men in the county who are more or less spasmodic in attending the meetings. When we get together we have a good time, but we have a lot of trouble getting together.

CAMPBELL-KENTON COUNTY MEDICAL SOCIETY.

F. A. STINE: I failed to bring a written report, but inasmuch as our Councilor, Dr. Wells, has presented an extensive report, it is hardly necessary. Our society meets monthly. We had 25 papers and 30 case reports during the year. Our attendance is fair, averaging about 25. Our experience is that there has been an awakening on part of the society to what it was the last few years, yet it is not up to the standard before the war. We hope to have a better report to make next year.

We have had trouble in our health work in trying to enforce vaccination of children coming into the schools, and we had an injunction brought against the health department, but the courts dissolved this injunction, and it is now before the Court of Appeals. We hope we will win.

We have two men who have no license to practice medicine.

BUTLER COUNTY MEDICAL SOCIETY.

GEORGE E. EMBRY: The number of physicians actively practicing in Butler County are, 2 at Rochester, 3 at Morgantown, one at Logansport. The three doctors on the list you encosed Dr. Elwood Wand, Woodbury, Dr. R. W. Harper. Quality, and Dr. G. H. Mulligan, Round Hill are only doing the work they are forced to do, and are not trying to keep up with the profession. Round Hill could support a doctor well, as we have only Dr. Mulligan on the north side of the river. Roads are rough; population to river about 1,000 or so. The doctors who have practiced in this section average 4,000 per year; collections 85 per cent. Cults, Will Jones, Morgantown, practicing medicine; John Martin, Dimple, practicing the healing art.

BARREN COUNTY MEDICAL SOCIETY.

J. W. ACTON: E. D. Turner of Cave City, has paid his dues to the Secretary, so he told me yesterday. John B. White, Joseph H. Miller and T. J. Bullock are all very old men, and none except Dr. White is doing but very little practice. Drs. Jones, Godby, Carroll and Biggers are not interested. We have 19 physicians in active practice. Those not active are old, with the exception of J. J. Adams and are not practicing on account of poor health. W. T. Briss is in poor health and is doing very little. Our society is doing very little. We do not meet regularly; in fact, the society is dragging along.

BOYD COUNTY MEDICAL SOCIETY.

GEORGE W. MOORE: I hail from the County of Boyd, which lies in the northeast corner of the state, and borders on the Ohio and Big Sandy Rivers, and whose territory embraces 166.7 square miles. Population 30,500. There are but two incorporated towns in the county, namely, Ashland, with a population of 22,500, and Catlettsburg, with a population of 5,000, the remaining 3,000 being left for the country districts.

There are 48 practicing physicians in Boyd County, 39 of whom are located in Ashland, 8 in Catlettsburg, and 1 at Rush. In addition to the 48 above mentioned physicians, there are 3 who have left the profession for a business career.

There are 600 colored people in Boyd County, with one colored physician.

There are 38 members in the Boyd County Medical Society, one of whom lives and practices in an adjoining county; 2 members have removed from Boyd County.

There are 15 physicians practicing in Boyd County who are not members of the medical society. Four of these are ineligible, one is a member of a society in another county; 3 have recently come to Ashland and have not had time to become members, and the remaining 7 have refused to join the society without giving any reason.

The Boyd County Medical Society meets at the Kings Daughters Hospital bi-monthly, with a fair attendance. The program consists of papers and case reports, which are usually discussed at length.

Each year we have an annual banquet at which practically all of the members are present. Owing to the hot weather, meetings are suspended during July and August, but we resume activities early in September with a smoker.

So far as I know, there is a feeling of good fellowship in our society. There is no predomination by any one physician nor clique of physicians.

The incorporated cities of Boyd have, I believe, a sufficient number of physicians; however, there is always room at the top, and we welcome any clean, well-qualified physician who may locate with us. With the outlying district it is different, there being but one physician and he is located at Rush.

There are a number of hamlets and villages in the county, namely, and with approximate population, Princess, 600; Rush, 300; Fairview, 1,000; Cannonsburg, 200; Bolts Fork, 300; Lockwood, 150; Mavity, 100. These places are either on the C. & O. Railway or on macadam road, completed, or under course of construction, and have either post office or rural delivery, churches and good county schools. A physician who will locate in any of these places will get plenty of practice and make a fair living.

Boyd County has eight mlies of brick and hard surface roads completed, 22 miles under construction, which will be completed within a year; 149 miles of dirt road is maintained by the county.

Boyd is not a Bluegrass county, but has some good farms, considerable stock being raised. The county is rich in coal, iron ore, fire clay, oil and gas.

So far as I know, we have no illegal practitioners, with the exception perhaps of a few midwives in isolated sections. We have two chiropractors in Ashland, who are doing a land office business. I presume these men are practicing under legal authority.

There is one physician legally authorized to practice medicine, and who, I have been advised, is a well qualified man, who has taken up some healing art and claims to cure asthma and practically all other ailments by the use of a hammer, pounding on certain vertebrae. This same individual recently went to Los Angeles, California, and took a course of some kind, God only knows what, under the tutelage of a man whose name, I think, is Abrams. When he returned to Ashland there was a long article in our daily paper relative to this special course he had gone so far from home to take.

Eligible, but not members, 7.

L. T. Hood, W. T. Flanagan, W. H. Bryant (colored), A. T. Henderson, A. C. Bond, Catlettsburg, holds membership in Pike County, W. L. Hatcher, Oscar Bailey, Rush.

Eligible, but not members because of having quit practice, 3.

Wm. Salisbury, W. H. Wheeler, F .M. Williams.

Recently removed to Ashland. These men are eligible, 3.

Dr. Wynans, L. E. Downes, R. W. Raynor.

There are 10 dentists in Ashland and 3 in Catlettsburg. The health department within the past six months reports 30 cases of diphtheria, with 2 deaths; 2 cases of scarlet fever with no deaths; typhoid fever, 11 cases, no deaths; influenza, no cases reported, but I have reasons to believe we have had some cases. Our efficient health department will put on the Schick test at the schools within the next few days. We have had no experience whatever in the Schick test.

THE PRESIDENT: This is one of the most interesting, instructive and complete reports I have ever heard read, and I hope some of you will put a little ginger and pep in the central part of the state.

CARLISLE COUNTY MEDICAL SOCIETY.

W. C. JOHNSON: Our county medical society meets regularly every three months. We have 10 doctors, all members of the society. In June we had 100 per cent in attendance and 100 per cent in papers. September we had 90 per cent in attendance and 100 per cent in papers. The papers were excellent, and we always have good discussions on all papers.

CHRISTIAN COUNTY MEDICAL SOCIETY.

W. S. SANDBACH: The Christian County Medical Society, I am glad to report, has had a splendid year. We have held 11 meetings, a dinner being served at six. Our May meeting was missed on account of sickness and death in the home of the secretary. We had an average attendance of 25. We have never failed to have a program. We have 39 members in our society which is every active practitioner in the county, yet there are 8 physicians who should be members, but they have side lines to their practive. Two of these are in Hopkinsville and the others in the extreme parts of the county. Two of these fellows give as their excuse for not being members that it costs too much, while the others just promise and let it go at that. Of course, there are other physicians in the county, but they are not connected in any way with practice. Some are old both in body and mind, and some have retired to the business world. We are credited by Dr. McCormack of having 17 non-members, but this list includes one in Paducah, one in Clarksville, Tennessee, one in California, one in Florida, and several connected with the local Veteran's Bureau and hold their membership in other counties.

Outside of the towns of Hopkinsville, Pembroke, Crofton, LaFayette and Fairview, there are 7 doctors in the county, 2 in the northern, 2 in the western, and 3 in the southern part of the county, and with plenty of doctors in these towns and good roads the country people are well supplied with medical attention.

As to quacks and imposters, we have very few. However, there is one in Hopkinsville, a so-called Hindu doctor, with address of 1002 E. First Street, who greatly imposes upon the colored people and some few whites. He has been in our County Court several times, and is given a small fine, is turned loose to go back to his same old tricks. I feel that he is one of these chaps that needs looking after.

It is reported that whisky prescriptions flow rather freely from some sources, and especially from some that are not connected with our society.

Our Councilor, Dr. Blackburn, and Drs. Frank and McCormack of Louisville, have been with us at one all day meeting, and it is needless to say what great tidings, information and encouragement they brought to us. We can only say, "come again."

There is perfect accord and a spirit of good fellowship prevails among our members at all times.

I want to say, in a great measure, our success this year belongs to our President, Dr. Bell. Whenever he was called upon for help, advice or encouragement, we were abundantly rewarded.

CLARK COUNTY MEDICAL SOCIETY.

W. A. BUSH: All the physicians except three are in active practice. Two of those retiring on account of old age, one on account of ill health.

There are no physicians to my knowledge practicing unlawfully.

There are two good locations in this county where an energetic doctor could make good if he is willing to stick close to business. One at Trap, a small village 11 miles from Winchester. The other at Wades Mill, 8 miles from Winchester. Churches and schools are convenient at both places. The roads are good. The doctor can use an automobile in practically all his practice at either place. Of the two places I believe Trap is the best. Being well acquainted in both neighborhoods, I can be of help to any one who desires to look the field over.

This now brings me to the part of my report which is left to me, I would as the recording Angel did for the good man's sin, drop a tear on the record, and blot it out forever.

Our medical society is in a deplorable condition.

There never has to my personal knowledge been a meeting of the society since the last election of officers. Our society has been a dead one for several years. Lack of professional ethics, and jealousy among amateurs, and throwing mud among the so called "Groups," is the only reason I can give for the present condition of affairs. Being friendly to all sides and belonging to no group or faction, I am prepared to make these remarks, without prejudice or ill feelings toward anyone. Neither do I fear wounding the feeling of any of them by the above statements, because I personally am an intimate friend of each. Also each one knows my views on the subject. My sole interest in this matter is for us to have once more the medical society we once had. With this alone in my mind, I continue this report. On the surface, no one to my mind is unfriendly to a brother practitioner. I am sure no doctor is carrying a deadly weapon for another doctor. But there are several affected with "Laymanitis," or "Limber Tongue." The chief symptom of the above malady, is discussing professional subjects and criticising other doctors with laymen. Several of our most brilliant physicians here are badly affected with this disease. I fear this epidemic is on the increase. This alone is keeping out most of the non-members, and also makes a meeting of the society practically impossible.

We have many people living in Winchester who have been so coached and enlightened by these diseased doctors, that they will insist on discussing subjects pertaining to any medical or surgical disease. It is alright for the doctor to enlighten his patient or the public in ways to prevent diseases, but when it comes to the fact that a doctor discusses diagnosis, treatments with laymen, and criticise his fellow practitioner in his diagnosis, management, and treatment of diseases with the laymen, it passes the point of endurance. You ask me for a report of this medical society, and the Clark County physicians, the above is a true report in a nutshell.

If possible I would like for this report to be read and recorded among the proceedings of this great meeting of the State Medical Association. It sometimes makes a bad boy good by telling the rest how mean he is. I hope this will help us when others know us as we really are.

I want Clark County to have a good medical society like it once had. I hesitate to offer any suggestion on account of all my efforts being met with disappointments. I served as president of the society for two years in succession several years ago. I must say then we had an ideal society. That was in the days of our great old man "Shirley." If we only had more just like him things might be different.

But if you will indulge with me a little longer, I will mention what might be a remedy—that you send some wide awake man here. Ask only one question, "Is this Winchester?"

Hire a taxi and come down town.

Avoid these spontaneous enthusiasts who will meet his train, or flock to hotel to take him a drive over our good roads among our beautiful bluegrass forms. This has been a previous habit of those suffering with Laymanitis or Limbertongue. Some few times I believe we might have gotten on foot again if above precaution had been taken. An acquaintance of non-members might be wise, for some of our best doctors are among them.

Then act on your best judgment and apply the proper remedy.

CUMBERLAND COUNTY MEDICAL SOCIETY.

W. C. KEEN: First, we have only 2 doctors who are not members of our county society, namely, Wm. Fayette Owsley and S. B. Cheatham. Dr. Cheatham is old and feeble, and practically retired.

We have 7 regular practitioners in our county, fairly well distributed over the territory, except the southern part of the county, Cloyds Landing. This was made vacant by J. W. Bowman moving to Tompkinsville. Dr. Bowman did well financially at Cloyds Landing, and left on account of bad roads and inferior schools.

DAVIESS COUNTY MEDICAL SOCIETY.

J. J. RODMAN: We report 52 members in good standing. The meetings during the year have averaged 27 in attendance. They have been enthusiastic. Those who have read papers have taken great care in preparing them and covered the subjects well.

We are proud of our senior member, S. J. Harris, who went up Little Round Top with Pickett fighting hard to end the war, and thereby save unnecessary loss of lives. He has been fighting just as hard to save suffering and lives for these long years. Although he has passed the four score mark, he is still one of the most active members of the society. Long live Dr. Harris!

FAYETTE COUNTY MEDICAL SOCIETY.

S. B. MARKS: Physicians in city and county. 119.

		White	Society members	Non-members	Colored
Practicing in city	98	89	76	13	9
Practicing in county	8	8	5	3	0
U. S. P. H. S.	4	4	3	1	0
Vet. Bureau	5	5	1	4	0
E. Ky. S. Hos.	5	4	1	3	0
		110	86	24	9

This is a percentage of 87.6 per cent membership of all who attempt to practice medicine in Fayette County, which includes the good, the bad, and the indifferent.

It is a source of regret to have been unable to interest the physicians connected with the Eastern State Hospital and the Veteran's Bureau in the society. We have tried in every way to arouse their interest, but have only a percentage of 38.4.

There are several doctors of various and sundry qualifications and attainments residing in Lexington, one of whom runs a butcher shop, who are not considered in this report. Of the 16 non-members practicing in the county, the following classification can be made: 5 were dropped for non-payment of dues; 5 are not desirable; 4 do little work and show no interest in things medical; 2 who will join, I am sure, if they stay in the city. There are 4 chiropractors in the county.

FLEMING COUNTY MEDICAL SOCIETY.

A. M. WALLINGFORD, JR.: Our county society meets the second Wednesday evening of each month, most generally with full attendance of its members. The number of members of the society is 13; retired physicians in the county 3; 3 physicians in the county are not members, namely Drs. Myers, Mulligan, of Ewing, and Dr. Skinner of Flemingsburg. There is no known reason why these gentlemen do not affiliate with the society. Drs. Myers and Mulligan joined the society, paid dues for one year, and finally dropped out by not paying their dues. D. Dye of Ewing, Dr. J. C. S. Brice and Dr. A. M. Wallingford Sr., are on the retired list. Dr. Wallingford, Sr., who graduated in 1865, was a class and roommate of our former secretary, Steele Bailey, then of Stanford. Dr. Brice has been paralyzed in the last year and his absence is felt very keenly by the members of our society and community at large.

There are three villages in our county that have no physicians, namely, Tilton, Poplar Plains and Hilltop. Tilton, just five miles from Flemingsburg, on a model road, has two churches, and has many merchants, and has been without a physician since 1918. Dr. Buntin was the last physician located in the town. Dr. Buntin was the victim of influenza and his place is still vacant. I suppose a good physician could earn $4,000 or $5,000 a year at this place. Poplar Plains has been without a physician for ten years; this village is five miles from the county seat on a splendid road; it has two churches, two merchants, and is in a good farming community. Hlltop, eight miles from the county seat, has had no physician for twelve years; it is a good farming neighborhood, and no doubt a physician could do well if located at this place.

We have no physician in our county who is practicing medicine in violation of the law.

Our secretary, Charles W. Aitkin, submits the following report to our Councilor and to our society's delegate to the annual State meeting at Paducah:

Members of county society	13
Meetings during the past year	10
Original papers read	None
Original discussions	5
Clinical cases presented to the society	1
Cases reported to the society	34
Average attendance	7.4
Eligible to membership, who are not members	3
Retired physicians in the county	3

Interest in the society during the year has improved.

There are three villages in the county, each five miles from a town where one or more physicians are located that have no physicians, viz. Poplar Plains, Tilton and Hilltop.

GRAVES COUNTY MEDICAL SOCIETY.

WILLIAM J. SHELTON: Graves County has a population of approximately 32,000 people. There are 36 doctors, all of whom are members of the county society, except 2. They give no reason for not belonging.

These men are all active in their work, except 3, and they are living in towns where there are other doctors able to render all medical services needed in the community. The 33 active physicians in the county serve approximately 970 people each; 16 of these physicians live in Mayfield, a town whose population is 6,636, and located in the center of the county. Doctors living in Mayfield can easily reach all parts of the county, except in mid-winter, when the dirt roads are impassable, and this is only for a short period. The country folk have easy access to some doctor, either in town or in the country. The doctors of the country are well distributed throughout the county. most of them living ten miles or more from town. and in every direction, also a fair distance from each other. From the present supply and distribution of doctors in Graves County, I am sure that every inhabitant can secure medical services when needed, if they will only show that they are willing to pay as best they can. Our doctors, as a rule, are splendid ethical gentlemen. There is one itinerant chiropractor in Mayfield who does some advertising. The doctors of the county cover an area of 540 square miles. They have only 1,000 miles of roads; about one-third of those roads are gravel and are fairly good all the year; the dirt roads get very bad. and it is impossible to use an automobile on them very much in winter months. There have been four meetings of the county society during the year, all of which were well attended. Two of them were held in Mayfield, two in the country. In the country the people showed much interest in the meetings by their attendance and entertainment. The programs have all been good, and most of the doctors responded.

The success of the society is largely due to our splendid officers, John L. Dismukes, President, and H. H. Hunt, our efficient Secretary.

GRANT COUNTY MEDICAL SOCIETY.

W. H. ELLIS: Our society meets the third Wednesday of each month. As to non-members, R. E. Limerick is too feeble to affiliate with us, and C. D. O'Hara is active at our meetings, but does not care to have connection with the state organization. There are 13 physicians in active practce. We do not need any more at Williamstown, but there is one section of Grant County that is in need of a man. Holbrook in the western end of our county is a thickly populated section, a small village, with two churches, and good schools. It is about ten miles to the nearest doctor.

HICKMAN COUNTY MEDICAL SOCIETY.

CHAS. HUNT: There are 3 doctors in our county who are not eligible. We have been having regular meetings, except in February and March. These meetings are held monthly. Being out in the country we have not had very many papers this summer, but we have had some interesting papers and case reports.

HARRISON COUNTY MEDICAL SOCIETY.

W. B. MOORE: The Harrison County Medical Society has 21 members, having lost one member by death and one by removal from the State.The society held 12 meetings during the year, with an average attendance of 14.75. There were 42 clinical cases reported, and 12 papers read.

We have 25 practicing physicians in the county. 4 of whom are not members of the society. One would probably have difficulty in getting in; one is in delicate health; the other 2 have been members, but failed to pay their dues and were dropped. They never attended when they were members.

Harrison County is not short of doctors. We have sufficient doctors to supply all demands.

We believe one chiropractor is practicing here without a certificate. One woman is conducting a beauty parlor in Cynthiana, and is reported to be treating some diseases with electricity.

HENRY COUNTY MEDICAL SOCIETY.

OWEN CARROLL:

Number of active physicians in county	18
Members of the medical society	13
Non-members	5
Colored physicians	0
Specialists	0
Institutional workers	0
Public health workers	0
Number of county nurses	1

The society meets the fourth Monday in each month.

JEFFERSON COUNTY MEDICAL SOCIETY.

CHARLES FARMER: Our secretary has not arrived with a report. Our society has a membership of 350, about 25 more than it was last year. We meet twice monthly, the first and third Monday evenings, and we have two case reports and an essayist. We take a vacation of two months during the summer, July and August. At other times we meet regularly twice a month as I have stated. I do not know how many doctors we have in Jefferson County; fully 50 per cent of them are members of the Jefferson County Medical Society. We have endeavored to increase the membership, but we find a great many men who are not interested in county society work.

JACKSON COUNTY MEDICAL SOCIETY.

W. B. HORNSBY: There are 5 physicians actively engaged in the practice of medicine in Jackson County, with a population of over 11,000 people, and an area of 400 square miles. The 5 physicians are very well distributed throughout the county, one at Bond, one at Annville, one at Gray Hawk, one at Sand Gap, and one at McKee. Our roads are very poor dirt roads, and mud knee deep in the winter time. Three of us belong to the Kentucky State Medical Association, and we hope to induce the other two to come into the fold next year. We have not had a county medical society this year, but I hope to organize one for next year. Georgiana De Jong, Gray Hawk, has only been in the county one month, and I am sure we can get her into the association next year.

We have had two men in the county, who were not registered, practicing medicine, but owing to our excellent circuit judge, they have decided to quit. We have no cults violating the law in the county.

We have had two trachoma clinics in the county this year, and they have been well appreciated by the people of the county, and we have done some excellent work.

KNOX COUNTY MEDICAL SOCIETY.

F. R. BURTON: At present there are 16 doctors in Knox County, all of whom are engaged in the practice of medicine, except one, W. C. Black, who is engaged in other business. All the doctors are members of the Knox County Medical Society, except Dr. Morehead, of Flat Lick, who refuses to affiliate with any society, and will not associate with any other doctor. The reason for his conduct is unknown. It is my opinion that Knox County is well supplied with doctors, and there is not a vacancy anywhere in the county where a doctor could make a decent living. We have three herbalists who are engaged in practice. They are John Scalf and Bill Bingham, of Himyar, and Squire James Warren, of Girdler, as a mid-wife.

LAWRENCE COUNTY MEDICAL SOCIETY.

A. W. BROMLEY: L. H. York, Louisa; W. A. Haynes, Adams; John C. Hall, Estep, and J. C. Bussey, Louisa, are all in the active practice in Lawrence County. L. S. Hayes is in the auto business in his town and has quit practice for a while. Grover C. Daniel, Fallsburg, is in the State of Washington, and never did any practice in this county. There are 18 physicians in the county. We have had no society meeting for some time. J. O. Moore, Ledocio, is secretary. I think it a good idea for you to notify the doctors who fail to send in their dues the first of the year, as it is an oversight on the part of some of them.

LOGAN COUNTY MEDICAL SOCIETY.

WALTER BYRNE, JR.: Our annual report for the Logan County Medical Society cannot shed much luster on the advancement and uplift of medical science and a building up of our state association.

The lack of interest in our county society is lamentable and the utter disregard of our monthly meetings is deplorable. What can we do? Surely, this is a cry from Macedonia ''come and help us!''

We have had 5 meetings during the year; seven times the Old Guard met and no quorum. We had the Third District Councilor, John H. Blackburn, with us at our meeting in November of last year, and we hoped for a betterment of conditions after his helpful talk.

W. W. Durham of the Western Asylum, Hopkinsville; Dr. Grizzard, Nashville, Tennessee, and Dr. Lionberger, of St. Louis, Missouri, came to our rescue, but alas the paucity of members appalled us. We worked up good material and interesting subjects, thinking it might be local talent that kept them away, but no interest developed. What are we to do?

Our membership in 1921 was 20; in 1922 it is 23; 4 new members, and one removal from the county. We have 4 doctors who are not members of our county society, and two colored M. D's. who are also not members.

Logan County has a population of about 25,000. Now we have 27 white physicians, and 2 colored physicians, 29 doctors to look after the health of 25,000 people, less than 1,000 persons per each doctor.

In 1904 there were 47 doctors in Logan County in active practice. The improved facilities for reaching the doctor have added very much to the comfort of the sick and injured, and we in our county are not suffering from a dearth of doctors.

LINCOLN COUNTY MEDICAL SOCIETY.

J. G. CARPENTER: We have 23 doctors in my county, one of whom is a colored gentleman. He is one of the best educated men in the county, and we are glad to have him. He takes care of our practices when we are not there. We have 118 doctors with their dues paid up as members of the society. Our doctors have kept their eyes open to the Medical Protective League. For the last eight years they have met and paid dues and feel they have protection. We have had two or three malpractice suits in the last year and have won them all. The people are afraid to bring malpractice suits in our county. We have 4 chiropractors who claim to cure astigmatism, hemorrhoids, appendicitis, fits, and so on. Some live in Diamond, come up to Stanford now and then, and return. We have two other chiropractors, a man and his wife, who are putting out all kinds of circulars and are placing pictures on the screen showing a woman's head and spinal column, and hundreds of nerves running to the remote parts of the earth, claiming to cure everything that human flesh is heir to.

We have been having meetings of our society once a year for the last eight years.

Our President, Dr. Kinnaird, and Dr. Estill preached from the text, "Oh, Lord, revive us again," and we got a multitude. Dr. Estill sang the song, "Throw out the life line across the dark way; send out the life boat, some one is perishing."

(Laughter).

At one of our meetings I discussed Einhorn's duodenal tube for ulcer. I looked around for some fellow to swallow this tube, but I could not get a single man among all of the doctors present, and I said that a doctor who would not take his own medicine was not fit to practice medicine. When a doctor ceases to attend medical society meetings he is dead, and we ought to erect a tombstone to his memory and inscribe on it, "dead." A doctor who does not attend medical society meetings should be numbered with the things of the past.

M'CRACKEN COUNTY MEDICAL SOCIETY.

VERNON BLYTHE: The members of our society are E. R. Goodloe, C. E. Kidd, Vernon Blythe, L. P. Molloy, H. P. Sights, C. H. Purcell, P. H. Stewart, H. T. Rivers, E. B. Willingham, O. R. Kidd, V. L. Powell, F. A. Jones, C. H. Johnson, J. Q. Taylor, J. T. Reddick, J. W. Bass, J. N. Bailey, S. Chambers, W. C. Eubanks, L. E. Young, J. C. Freeland, Frank Boyd, Warren Sights, H. A. Washburn, G. B. Froage, H. P. Linn, S. B. Pulliam, E. W. Jackson, R. E. Hearne, Edward Adams, J. B. Acree, H. G. Reynolds, C. C. Morris, C. P. Burnet, W. A. Lackey, R. B. Kirkpatrick, W. H. Duley, Allen H. Shemwell, J. Vernon Pace, R. C. Gore, and G. E. Aubrey.

The number of members of the McCracken County Medical Society to date is 42. The two osteopaths are now registered physicians. G. S. Froage joined the society last year. J. T. Gilbert had not as yet received his M. D. degree as the names were sent in during the spring, and he has not yet applied, althought I personally asked if he would express some interest. We have three colored physicians.

R. S. Shelton had a long spell of illness and is not as active as he used to be. Drs. Otey and Gallimore live at the edge of Graves County and do not take the interest in our society as they possibly are a long ways from the meeting pleces. I do not know why Ralph Holt does not belong; he lives in the county, and has not taken any interest for three or four years. I do not know why. Dr. Hilliard is afflicted with a considerable regree of deafness and naturally living in the country does not care. I cannot tell about Dr. Moffett, I know him, but do not know whether he has any definite reason for not belonging to the society.

Thomas E. Moss spent many years in the Philippines and does not take interest in the county society, but he has at times shown interest in the State Medical Association. W. T. Dowdall and W. Berthold are on the staff of the I. C. Railway Hospital and have not joined the society. Dr. Graves is inactive.

There are 3 chiropractors in the city; I do not know how active they are. There has been a Dr. Osborne so-called who has been soliciting patients, I understand, on the street for cancer cure. The parasites of medicine are with us and always will be very likely.

I do not think that Paducah or McCracken County is suffering any from lack of practitioners. The roads are for the most part in a passable condition, both summer and winter, and the rapid transit by the automobile and the use of the telephone have diminished distances and the need of a physician in every hamlet or neighborhood. The schools are improved all over the county and in some places they are developing a community spirit or school. There is no doubt there is a strong tendency for the physicians to come to the larger centers, and who can blame them?

The general income of the physicians for the amount of overhead expenses attached, and the corporation and cutting of other things are not keeping step with other business.

MARSHALL COUNTY MEDICAL SOCIETY.

F. M. TRAVIS: Marshall County has 23 physicians, and of this number, 21 are in active practice. Two have retired on account of their ages and conditions of health. Sixteen are members of the county and State Medical Association. The secretary has reported to the county society that he has used every available means to secure the membership of the 5 non-members, but without success. Marshall County is amply supplied with active physicians, and the health has been unusually good this year.

MEADE COUNTY MEDICAL SOCIETY.

E. C. HARTMAN: The following are the members of Meade County Medical Society: R. B. Walter, Ekron; J. L. Allen, Concordia; F. S. Shark, Battletown; A. A. Baxter, Brandenburg; E. C. Hartman, Brandenburg. The following are non-members: D. E. Youtsler, Payneville (indifferent); Charles Shirrell, Battletown (about retired); R. W. Burch, Ekron (retired) and S. H. Stith, Ekron, farms and indifferent).

There are no unlawful practitioners in the county. There is a good opening for a physician in Brandenburg. There are good schools and fairly good roads. The population is 1,000, the county seat, and there is easy competition. Dr. Hartman is leaving soon. Collections will run about $350 a month.

M'LEAN COUNTY MEDICAL SOCIETY.

WILLIAM L. HAYNES: McLean County has been blessed with good health during the past year. We have had no epidemic of any kind. Very little notifiable diseases have occurred. I am quite sure that members that you speak of simply overlooked sending their dues for they are all good men. We now have in the county the following physicians: Calhoun, Drs. Daniel (late of Owensboro), W. W. Spicer, W. L. Haynes; Dr. Gilmore moved to Sorgho, Daviess County; Sacramento, J. W. Clark, Will Moore, Island, J. S. Fitzhugh, O. B. Brown; Livermore, R. L. Ford, F. L. Johnson; Beechgrove, J. D. Roberts; Glenville, A. F. Ayer.

We have a good lot of doctors in our county. There has not been a quack here for several years. We have a good country in every way, except we have such miserable roads.

MUHLENBURG COUNTY MEDICAL SOCIETY.

CLARENCE WOODBURN: There is very little to report as our society during the past year has been very inactive. We have at present a membership of 28 out of the 37 graduates in medicine in the county. This leaves 9 men who are non-members of the society. Dr. McCormack has asked that we report why the non-members do not belong to the society. I have spent some little time in endeavoring to ascertain why. Five of the men are well up in years and are no longer active practitioners. Of the 4 remaining, there is no reason on earth for their non-membership, except the fact that they are too unprogressive and contrary to agree to anything that the majority want. The society during the past year has had absolutely no pep or enthusiasm and is almost a dead issue. The reasons for this are varied.

First, the roads for the greater part of the year have been impassable, and it has been almost a physical impossibility to get over the entire County. Railroad connections are such that it means a eighteen to twenty hour absence from one's business to attend a meeting of the society. In the second place, the officers have been rather neglectful in the arrangement of the meetings. In the third place, there has been no program prepared for the past twelve months for any meeting. These four facts alone are sufficient to kill any society under the sun and unless something is undertaken and accomplished it is only the matter of a very short while until our society will cease to exist.

MARION COUNTY MEDICAL SOCIETY.

G. G. THORNTON: I regret to report that so far as real work, such as meetings, having papers read, reports of cases and their discussions are concerned, a faithful portrayal would be to say that for the past twelve months there has been nothing doing. We have 15 white doctors in the county who have paid their dues and 3 who have not. We have one who does not live in the county and who is not practicing, but who keeps up his dues. We have 3 who are not affiliated with the society, one of whom is superannuated, one who has never been in active practice, and one who has been located at several places and has only been in the county about one year. We have twelve who are general practitioners only, one who does special work only (eye, ear, nose and throat) and 2 who do practically everything, surgery in particular. At present we have plenty of doctors to take care of the sick of the county, except when roads are very bad.

PIKE COUNTY MEDICAL SOCIETY.

Z. A. THOMPSON: We have in Pike County about 25 active practicing physicians. Something like one-half of that number are members of the Pike County Medical Society; a portion of the other half do not take any interest in the county meetings, therefore they do not join. The other portion live quite a distance from Pikeville, and at present the roads are in no condition to travel very comfortably, if at all.

At present, owing to bad roads, few schools and churches, most of our physicians are concentrated in Pikeville, and smaller towns which, of course, is quite a hardship on the country territory. There are three or four splendid locations in the county, especially at Meta, which would afford likely a population of say 2,000 people, in an area of twelve miles. I am sure an active, wide-awake physician could realize $10,000 per year.

I think inside of the next twelve months our roads will be in such condition that all the doctors in the county can get to our meetings in machines without losing very much time. I repeat, the three or four locations I speak of above are badly in need of physicians, and any good, active physician could do well at any of these places.

PENDLETON COUNTY MEDICAL SOCIETY.

O. W. BROWN: First, we are not having regular meetings since we were disorganized during the war. Some of the members have never attended a meeting in four years. It seems to be due to indifference more than anything else.

We have eleven active physicians in the county. K. B. Woolery is not in practice, due to ill health.. A. S. Beckett and John E. Wilson, of Butler, have refused absolutely to have anything to do with any of our meetings or to connect with us in any way. I am not able to explain the attitude of these two or why they take this stand.

We have lost two members by death in the past four years, S. T. Eckler and P. N. Blackerby. We have only three doctors in the county outside of town, S. M. Hodgkins at Gardnersville, T. C. Nicholas at Morgan, O. W. Brown at Lenoxburg, and at Peach Grove there is need for a physician. The roads are fair, churches and school near. The income of former physician was about $4,000 per annum.

There is no one practicing any of the cults in violation of the laws to my knowedge. We have one chiropractor in Falmouth that seems to be well repaid for her false pretenses. She drives a big Stutz car, where the rest of the profession in the county drive Fords. Of course, this should be considered a cult in violation of our laws, but as yet these seems to be no means or ways of dispelling them from among us. The proposition of this school is beyond the conception of most of us, and there is to my mind something alarming to the medical profession of this and all other states in connection with this very large body of unskilled imposters.

The doctors of the county are not distributed according to population. Some sections of the rural districts in time of an epidemic are almost in distress at times, for the want of medical attention. Almost all of the roads in the county are macadamized, but many of them are in bad repair. There have been some personal grievances between some of the members at Butler, and also some misunderstanding between two of the Falmouth men. This, I presume, has had a bad influence in the society in regard to attending our meetings.

We are working for the betterment of the county society and hope to have a real live, earnest and functioning body of doctors in our county in the near future.

TODD COUNTY MEDICAL SOCIETY.

CHARLES M. GOWER: For a number of years we flattered ourselves into believing that we had one of the very best county societies in the state. This was due to the fact that there were four or five active enthusiastic doctors who could always be counted as present at each meeting, and who were ready and willing to make any kind of sacrifice for its success, but as time moved on these men have grown older, and their work has become more exacting, and the demands upon their time have been many and varied, so naturally they did not have so much time to devote to this work. As a result of this, for the past three or four years we have had a very poor society, and I am frank to say that were it not for the untiring efforts, zeal and enthusiasm of our secretary, we would have been dead long ago. But this secretary will not take no for an answer, he is always on the job, and due entirely to his efforts, under many discouragements we have been doing better work for the past few months. We have had regular meetings, there is being more interest shown, and it seems that we are in the midst of a revival that will soon lead us on to better deeds.

We have 12 active doctors in the county, 3 of whom are not members of the county or state society. One of these, due to the condition of his health, does very little practice; and the other spends most of his time farming, and is but little interested in things medical. The other says it is purely negligence on his part that he is not a member.

We have only one doctor in the county who is not in practice, and he retired years ago to enter the banking business.

We have no shortage of doctors—at least, there is no locality in need of one that is in a position to remunerate him. We have no one engaged in any kind of practice in violation of the law. We hear rumors occasionally that one or two of our own members are engaging in the practice of some illegal acts, but if they are not very careful they will be attended to by and by.

SHELBY COUNTY MEDICAL SOCIETY

S. L. BEARD: There are at present 30 doctors in Shelby County, 24 of whom are in active practice. There are 6 who do not practice; there are 4 in active practice who are non-members, due to their own neglect.

There is one location in Shelby County in need of a physician, Chestnut Grove, seven miles north of Shelbyville. There are good roads, a county high school, two churches, and several miles of territory. The probable income would be $3,000.

We have had 3 meetings of the society since January 1, 1922. The Councilor, Dr. Aud, was present at one meeting, made a talk about society organization, and we have several visitors from Louisville, including L. H. South, State Bacteriologist.

SPENCER COUNTY MEDICAL SOCIETY.

E. L. BRANNAMAN: The following list of non-members have not qualified, and the secretary of the county society, R. Y. Shepherd, informs me, that he has notified each several times in person or by letter, but each has failed to respond: Ernest C. Wood, Wakefield, E. A. Whittington, Taylorsville. J. T. Tichenor, Taylorsville, Thomas J. Snider, Mt. Eden, Benjamin F. Shields, Taylorsville, E. H. Milton, Mt. Eden, O. L. Conrad, Taylorsville.

The following is a corrected list of those actively engaged in practice, which includes all physicians in the county, except H. C. Mathis, who retired many years ago, and E. A. Whittington, who does very little, if any work, he being an aged man: R. Y. Shepherd, Taylorsville, Benjamin F. Shields, Taylorsville, E. L. Brannaman, Taylorsville, Thomas J. Snider, Mt. Eden, Ernest C. Wood, Wakefield, J. T. Tichenor, Taylorsville, J. F. Furnish, Whitfield, Taylorsville, O. L. Conrad, Elk Creek, Taylorsville; E. H. Milton, Mt. Eden.

About 50 per cent of those engaged in practice have other interests on which they depend for a part of their income and expense of living. You will see that we have 9 physicians in active practice to a population of 7,785 which meet all requirements; in fact, more than necessary, so that there is no need for more physicians in this county. The distribution of those practicing is about as satisfactory as can be obtained.

The conditions of practice in the county are not satisfactory from the fact of bad roads, many streams with very few bridges, with most of the practice during the winter months.

As to the professional side, there has been little cooperation in the profession here I think for a quarter of a century, and with but little prospect for improvement in the near future. The fees are low, collections very slow, and the percentage lower than will justify men of proper attainment and in keeping with men in other lines with equal responsibility and attainment.

As to the county board of health, we have no organization, nor health officer, which we are badly in need of as conditions generally are poor as to sanitation, and little effort is made along the line of prevention. We have had during the last two years two epidemics of diphtheria that were widespread, and with considerable mortality on account of long standing in most of the fatal cases before physicians were called.

Great benefits could be derived from a better organization and work along educational lines in the health work. What I said fully represents conditions in Spencer County.

WARREN COUNTY MEDICAL SOCIETY.

JOHN H. BLACKBURN: I have no figures to present regarding the Warren County Medical Society. Conditions in our county have been strained. We have struck a few thorns which have consisted of chiropractors and so-called regulars. One of our regulars had been guilty of some particular acts that the county society considered at least immoral, and when he presented his application for membership in the form of a check for dues, he was rejected by the county society. He asked for another hearing, and quite naturally he has been granted that hearing. We are convinced he will not appear in person to present his claim to the county society.

We have another so-called practitioner, an ex-service man, who was alright, four square with the laws and world when he got into the army, but since then he has had flat foot, hemorrhages of the brain, all said to be the result of active service under Uncle Sam. He wanted one hundred men to give him $3 a piece to buy a Ford. Three hundred men gave him a dollar each. He has not had the nerve to apply for membership in our society. We have one in reserve for him if he should. Aside from that, we have 5 men in the county who have practically retired When we consider these two ineligible men, and the men who have retired, we can report for Warren County almost 100 per cent membership.

So far as roads are concerned, they are not as good as they might be. The rural districts need physicians. There are some three or four locations that need physicians badly. With our roads in their present condition, I should say of the area around the county the City of Bowling Green is ample to provide medical attention for practically the whole county. We have one district of some six miles that has 3 physicians, and they probably in from five to ten years will be all gone.. They are getting up in years and will not be here very long, and that community will need physicians.

I was asked to submit figures as to the expenses of living in these different districts, but I am not able to give them. However, a doctor can make a good living in any part of the county. We need about four physicians.

WAYNE COUNTY MEDICAL SOCIETY.

J. F. YOUNG: T. H. Gamblin will not pay. M. L. Bryan is not at Frazer, but somewhere in Pulaski County. William Bryan Parnell, never paid and never will pay. Otto D. Bertram, Sunnybrook, will not pay.

Those engaged in active practice are: J. W. Bristow, O. M. Carter, Perry Parrigan, L. H. Gamlin, C. B. Rankin, J. F. Young, Otto Bertram, William Bryant.

Those not actively engaged in practice are: William Cook, F. M. Powers, J. A. Jones, W. W. Woodrow. The number in practice who are violating the law is 6.

There is no room here for a man as long as the men are allowed to go free who are in open violation of law. The county society has met 4 times this year. About 4 men always attend. The others do not care.

WEBSTER COUNTY MEDICAL SOCIETY

ROY ORSBURN: The following report from Webster County is not at all satisfactory, and anything but a compliment to the medical men, living in and practicing in it. To begin with, there is not even a society. One was organized in 1912, and there were a few meetings that year, and also in the following year. After that several paid dues, but there were no meetings, although programs were made and published in the county papers, but on the stated dates no one was present but the secretary. So no more efforts were made to have meetings. There is not even a president, the one elected died several years ago, and there has never been a meeting since to elect one. I did receive an invitation to be present at a meeting at Providence to a lecture by Dr. Davidson, of Evansville, by the secretary, but as a Dr. White of that town paid me his dues, I suppose the society there went dead also.

The physicians in active practice number 19, with 4 on the retired list because of old age.

I know of no place that is desirable for a location now. Some places have more physicians than are necessary.

A Dr. (?) Litcher Cavenah, of Providence, was indicted in this county for practicing without a license a few months ago. I don't know what became of him.

I hope to see in the next issue of the Journal an article "how to make the county medical society a success."

WOODFORD COUNTY MEDICAL SOCIETY

CHARLES F. VOIGT: The report of this society is more of a negative report than a positive one. In fact, the Woodford County Medical Society is in name only. There have been no meetings during 1922, and so far as the writer is aware, there have been none in the past three years.

At present, there are in Woodford County in active practice 12 physicians, and of this number, only 5 have paid their dues for 1922, to the state association, the 7 remaining have failed to connect either through carelessness or indifference.

Several attempts have been made to organize in Woodford County, but of no avail. The writer and several more of the physicians would appreciate any help from the state association to form a permanent and lasting organization.

J. W. KINCAID: Since we are on county society reports, I will say that in Boyd County we have as members of our society a homeopath, osteopath and an electic, and as long as these gentlemen do not claim to practice sectarian medicine we take them in. All of them are decent fellows, and they attend the meetings of the society about as regularly as so-called regulars.

In the absence of John J. Moren, Chairman of the Medico-Legal Committee, the Secretary read the report of this committee as follows:

FOURTEENTH ANNUAL REPORT OF THE MEDICO-LEGAL COMMITTEE.

To the House of Delegates of the Kentucky Sate Medical Association: The following is submitted as the fourteenth annual report of the Medico-Legal Committee: During the year 9 cases have been reported to the committee. Eight cases have been disposed of, either by trial or dropped by the parties. One case of fracture, on the first trial resulted in a hung jury, and at the second trial a verdict of $2,500 was rendered against the doctor. This case will be fought further.

The cases now pending are not very serious, but we have one that is very interesting, in that it brings up the question of operation without consent.

The work of the committee seems to be satisfactory in every way and as far as I know, no complaints have been made. If so, we would be glad to correct them.

J. J. Moren, Chairman.

J. W. KINCAID: What does the report show as regards maintaining expenses for that branch of the work this year?

THE PRESIDENT: This report will be referred to the Council for action.

THE SECRETARY: An important question for the House of Delegates to consider is whether or not we desire to organize within the society for carrying our own indemnity insurance. It would make a great difference in saving cost to the profession. This is the fourteenth report of the Medico-Legal Committee. We have lost 2 cases in 14 years, one for $3,000 and one for 2,500.

A question the House of Delegates should know is that the profession of the state are expending $35,000 a year for indemnity insurance. Taking the whole thing for the fourteen years, including costs and everything, it has cost in the neighborhood of $20,000 to carry on the whole business, including lawsuits, lawyers' expenses, etc. It looks as though we are paying too much for what we are getting.

JOHN H. BLACKBURN: What is the average charge per year for these commercial organizations, such as the Fort Wayne Medical Protective Company?

THE SECRETARY: They started at $15, and then got up to $35 and $40. It has been suggested that eventually we would take this thing over and conduct it on some such basis as automobile insurance. The price you pay is $15 a year for the first year, then the members who desire to secure indemnity insurance each year after that, the amount of balance left over, after setting aside a certain fixed sum to be determined by the House of Delegates for a reserve, would be used to deduct the cost for the following year. At that rate, it would cost the members of the profession $1.50 a year for indemnity insurance in the state if the members took that form of insurance. That is done in a number of states.

THE PRESIDENT: Are there any further remarks? If not, we will take up the next item.

I would like to know if the Medico-Legal Committee has made any plans to consider this matter of insurance?

THE SECRETARY: The Council has considered the matter and will report back to the House of Delegates. We will initiate it the first of the year if the House of Delegates decides to have it done.

R. C. McCHORD: The Council has employed Beckham, Hamilton and Beckham as our attorneys. I do not know just exactly the status of employment of Mr. Forcht.

THE SECRETARY: Mr. Forcht represents the Medico-Legal Committee, but the Council have employed this firm of lawyers to look after our interests in other matters.

PAUL KEITH: This would be a very important matter for the House of Delegates to take up. It is an important step. If it is possible to get indemnity insurance for $15 a year the first year, and $1.50 a year later, if we can save $35,000 we might as well have it as the Fort Wayne Company or some other company. I would be willing to support a proposition of that kind. I think this House of Delegates ought to take whatever action is necessary to start the thing.

GEORGE A. HENDON: I move that a committee of three be appointed to take this matter under consideration and report back to the House of Delegates as to whether it is wise to organize indemnity insurance for the Kentucky State Medical Association.

Seconded and carried.

THE PRESIDENT: I will appoint on that committee George A. Hendon, R. C. McChord, and the Secretary.

PAUL KEITH: Dr. McChord mentioned employing the firm of lawyers he has referred to. I understand that Mr. Forcht has been our attorney for a long time. Is there any objection to keeping him in office and in working for us?

THE SECRETARY: Mr. Forcht is the attorney for the Medico-Legal Committee and has entire charge of all the Medico-Legal work. The State Board of Health, with the assistance of the Council, has engaged the firm of Beckham, Hamilton & Beckham to take charge of all prosecutions of illegal medical acts and of all violations of health laws of the state. They are subject to the call of county societies in the prosecution of quacks and violations of the health laws at any time, and will assist as necessary personally in the trial of any suit coming under violation of the law.

THE PRESIDENT: The next thing in order will be the editor's report.

THE SECRETARY: I desire to report that there have been twelve issues of THE JOURNAL since last year. You will observe that THE JOURNAL has been increased size every issue during the year. This has been necessary because there has been a larger volume of papers and more discussions coming from the county societies. You will also note, and Dr. South will call attention to the fact, that THE JOURNAL this year has cost a thousand dollars more than the advertising income. The House of Delegates should decide whether they desire to continue the practice of the last seventeen years of publishing every paper which is sent in by the county societies to the Journal for publication. At present only one paper was not published, and that was lost. There are two ways of doing this. Ours is the only state society in the United States that publishes every paper. In most of the societies the Publication Committee through the Council passes on papers and makes selections from them. We have felt it better as a matter of policy an dbelieving it was more democratic we publish all papers and while they might not be quite so scientific, they serve the medical profession of the state. It is a question whether the society desires to go on with that policy or to make a change in it. THE JOURNAL is the property of the physicians of the state and it is entirely under the control of the House of Delegates, and in its conduct your instructions will be carried out literally in any and every way.

R. C. McCHORD: This matter has been before the Council, and the Council has deemed it wise to recommend to the House of Delegates that this policy be continued by enlarging the edition of THE JOURNAL, as has been done, and in order to meet the additional expense, without drawing on the reserve too much, we recommend that the dues be increased to $5 in place of $4. (Motion seconded).

F. A. STINE: I would suggest that before considering this motion the House of Delegates wait until there is a bigger representation of delegates than there is here at present.

THE SECRETARY: The motion can lie over until a subsequent meeting.

THE PRESIDENT: The vote will be taken at a subsequent meeting of the House of Delegates.

I wish to call your attention to Section 6, Chapter VII, of the By-Laws, which reads: "all reports on scientific subjects and all scientific discussions and papers read before the Association shall be referred to the JOURNAL for publication. The editor, with the consent of the Councilor for the District in which he resides, may curtail or abstract papers or discussions, and the Council may return any paper to its author which it may not consider suitable for publication."

I thought some of you were not familiar with that section of the By-Laws. That may answer some of the questions.

THE PRESIDENT: Is there any discussion on the Report of the Business Manager? If not, we will proceed with a discussion on THE JOURNAL.

J. W. KINCAID: I would move that it be passed until tonight, and then we can have a general discussion.

Seconded and carried.

THE PRESIDENT: Is the Chairman of the Committee on Legislation and Public Instruction ready to report?

V. A. STILLEY: As most of the members of my committee are in the northern and eastern part of the State, I have not had time to get the committee together. Some of the members have not come in yet, and I would like to have the report deferred for future consideration.

THE PRESIDENT: We will take up that report after the general discussion on THE JOURNAL tonight.

Is there any miscellaneous business to come before the meeting?

J. G. CARPENTER: When we first had councilors I was presiding elder of the Seventh District. I did not wait for the doctors to come in and organize. I organized some of the counties two or three times. I sent out postals that there would be a meeting on a certain date and every doctor must be there. "Come and hear ye him," and they came. I was not satisfied until I organized a local society. There were several men who said they would like to belong to it, and after it was organized nobody wanted to be secretary. We finally elected Dr. Davis to membership and secretaryship. We soon brought in other doctors. We brought in the only member in Rockcastle in good standing. If the councilors would work on that basis alone we would have bully medical societies.

THE IRVINE ESTATE.

W. B. McCLURE: There was a committee appointed by this body a year ago, consisting of Drs. Estill, Dunn and myself. We have been unable to make a report because we had nothing definite to report. I refer to the Irvine Estate at Richmond. The good lady attempted to leave certain property to the State Medical Association. There was no definite organization of that kind, but we knew what she meant. The will was so peculiarly written that we were unable to make head or tail out of it. We have spent hours with the attorney, the administrator of the estate, without reaching any definite conclusions, since which time we have had no source of revenue from which we could expect to operate this property as a hospital. This good woman left certain property in Kansas City, I believe it was, the proceeds of which amounted to $2,500 a year was to go to the State Medical Association for the maintenance of this hospital, which was to be established on the property at Richmond. A test case of the validity of that will was made in Missouri, not by us, but by other interested heirs, and they lost, and in their losing we lose, so that we have no source of revenue to operate the hospital if the State Medical Association wants to operate it. which I do not think they do. I do not think the State Medical Association has any business to operate such a hospital. The terms of the will were such as to make it impossible to operate such a hospital. There were provisions in it that no foreigner could be treated in that hospital, no one from the Eastern Kentucky Normal School could be treated; no nurses could have a home within that institution, and no negroes could be treated, and if you eliminate this class of cases, there is nobody left to support the hospital.

Your committee has considered this matter very carefully, and has conferred with the attorney, but really we do not know where we are at. We want instructions. The property is worth in the neighborhood of $40,000. It is a beautiful piece of property comprising thirteen acres in Richmond. The attorney for the other side, Judge Lillie, came to my office to borrow a copy of the Kentucky Medical Journal. He wanted to contest the case on several grounds. I asked him if we should verify our right to the property, and if there was a possibility of getting something out of it. The great trouble is, the will provides that in case the State Medical Association does not take over and care for the property, it shall revert to the City of Richmond for a park. In the case of the park, it is stipulated among other things that no picnic shall be held on the ground, no dinners, no public gatherings, and yet for a park these things are essential. I understand the City of Richmond will not touch it. The city attorney told me that we must not expect to get much out of it, but that we might get something as a compromise to drop the matter. That would have to be dealt with, and they would give over their portion. The attorney on the other side is convinced that we cannot handle it, that he is not in position to give us very much to let it alone. That is what your committee is up against. I have no suggestions to make other than the one hinted at by Dr. Frank. That has been in my mind all the way through. We do not want to burden ourselves with the property and put away our hard earned dollars in maintaining the hospital there.

I tried to make some terms with the Madison County Medical Society whereby they might handle it. They wanted to build a new hospital in Richmond. They are tied up with the Patty Clay Hospital, an endowed institution, and they will not relinquish their name and cal it the Irvine-McDowell Hospital. Five hundred dollars was left to build a monument to Ephraim McDowell in Richmond, to be a duplicate of the one in the cemetery there. It was ten years ago when the will was written. Such a monument could not be duplicated today for $10,000. We would like some instructions from the House of Delegates as to what to do.

THE SECRETARY: I move the committee be continued with power to act.

Seconded and carried.

THE PRESIDENT: Is there any further business?

THE SECRETARY: I have one or two communications, one a letter from the American Press League, with a letter from the Secretary of the American Medical Association in regard to a proposed newspaper campaign to educate public opinion on the basic principles of health conservation.

I move that this communication be referred to the Committee on Publicity.

Seconded and carried.

THE SECRETARY: I have two communications from the Bureau of Medico-Legal Medicine of the American Medical Association, the first one written on August 29, and I move that it be referred to the Committee on Legislation and Public Instruction for such action as may be desired.

Seconded and carried.

The second communication is as follows:

Dear Doctor McCormack:

I hope that the Kentucky State Medical Association will consider at its approaching meeting the advisability of taking action with respect to the national prohibition law and with respect to the training of veterans as chiropractors by the Veterans' Bureau, along the lines of the action taken with respect to these matters by the American Medical Associaion at its recent St. Louis session. Copies of the resolutions adopted by the Association appear on pages 1709-10 of "The Journal," June 3, 1922. The adoption of similar resolutions by the Kentucky State Medical Association will be, in my judgment, distinctly helpful to the cause.

If the Kentucky State Medical Association adopts such resolutions, copies of them may with advantage be sent not only to the Secretary of the Treasury, Commissioner of Internal Revenue, and the Prohibition Commissioner, in so far as they relate to the National prohibition law, and in so far as they relate to the Veterans' Bureau, to the Director of that Bureau and to the Assistant Directors in charge of the Medical Division and the Rehabilitation Division, but also, in both cases, to every Kentucky Senator and Representative.

I have reasons to believe that the success of the chiropractors in getting and keeping a foothold in the Veterans' Bureau will lead similar sects to make strong efforts to do likewise. I suggest, therefore, that any resolution adopted with respect to the vocational training of disabled soldiers be directed not only against training them in chiropractic, but in training them in any similar calling. Insistence should be placed upon the fact that if they are to be trained to treat the sick and injured, they should be required to have preliminary and technical training not less than that required of physicians.

In considering the adoption of resolutions relating to the national prohibition law, it will be well, I think, to study carefully the new rules promulgated by the Secretary of the Treasury on the recommendation of the Commissioner of Internal Revenue, which, in so far as they relate to the prescribing of liquor by physicians, appear in "The Journal" for September 30. If the Kentucky State Medical Association finds anything in these new rules that is, in the judgment of the Association, unnecessary and oppressive, it might be well to incorporate in any resolution that may be adopted a protest against such burdens.

If the Association finds it is practicable to take action along the lines suggested—and I hope that it may do so—will you not kindly furnish me with copies of any resolution that may be adopted.

Yours very truly,
W. C. WOODWARD,
Executive Secretary.

THE SECRETARY: I move that this communication be referred to the Committee on Legislation and Public Instruction.

Seconded and carried.

THE SECRETARY: If there is no objection I would like the House of Delegates to take up out of the regular order the Report of the Committee an Automobile Liability Insurance. It is put down on the program for the third session of the House of Delegates. Dr. Moren has submitted the report, and tonight we will have the privilege of listening to Mr. Winfrey, Executive Secretary of the State Medical Association of Virginia. We can discuss the matter before Mr. Winfrey arrives.

As no objection has been raised, I move that this be done.

Seconded and carried.

The Secretary read the Report of the Committee on Automobile Liability Insurance.

At the conclusion of the report he said: Dr. Moren is not present, and as this matter is one of considerable importance, I would suggest that a special committee of three be appointed to consider the matter and report to the House of Delegates following the discussion we are to have tonight, when Mr. Winfrey is here.

J. W. KINCAID: In accordance with the suggestion of the Secretary, I move that a special committee of three be appointed by the chair, and that further consideration of this subject be deferred until tonight under the head of "unfinished business."

Seconded and carried.

THE PRESIDENT: I will appoint as that committee, Drs. Blackburn, Stine and Mark.

Is there any further business?

THE SECRETARY: I move that Mr. Winfrey be invited to appear before the House of Delegates and be accorded as much time as he needs for the presentation of this subject.

On motion, the House of Delegates adjourned until 7 p. m.

Seconded and carried.

October 16—Second Meeting of the House of Delegates.

The House of Delegates reconvened at 8:30 p. m. and was called to order by G. W. Moore, Ashland, who, in the absence of the President, was elected chairman pro tem.

THE CHAIRMAN: What is the first order of business, Mr. Secretary?

THE SECRETARY: The special order for discussion this evening is the question of automobile liability insurance. Mr. Winfrey, Executive Secretary of the State Medical Society of Virginia, is here, and I want to have the pleasure of introducing him to the House of Delegates. He is all time executive secretary of the State Medical Society of Virginia, although he is not a physician.

Mr. G. H. WINFREY: When I went to work for the medical society I took up the insurance matter to see how physicians were penalized and I found that they pay from 8 to 20 per cent more for their insurance on automobiles than the general public, and the question occurred to me why should they not be given the same rates as the general public? They drive their cars more. I got an experienced and reliable rating on physicians alone by means of a questionaire which was sent to 7,000 physicians, and the replies have been astonishing.

I have investigated the losses of physicians in a group of states and cities, such as West Virginia, Virginia, North Carolina, Washington, D. C., Baltimore, and I got the experience of more than 100 physicians from Philadelphia. The total number of physicians who reported on cars was 2,678 for 1921; average liability losses $1.34; average property damage $2.67; average collision losses $10.51. The total losses $39,000; total cost of insurance about $400,000. The principal losses were caused by truck drivers who drive delivery wagons for wholesale and manufacturing establishments.

To summarize, of about 80,000 physicians in America who carry automobile liability insurance, the average they pay in round figures amounts to $5,000,000. The amount they pay for their losses is possibly $600,000.

I had a man in New York working on this, and he got reports from 4,000 physicians in New York state, and their losses averaged $32 per car.

My object in coming here is to induce, if I can, several state societies to unite in an organization of a company which will carry insurance for this particular group of people. It is estimated the physicians of Kentucky pay $60,000 a year for insurance. Their losses will not exceed perhaps $10,000. If we can bring into such an organization Indiana, Kentucky, the District of Columbia, etc., it would mean that we would be able to turn into your treasury a sum of money that would not leave you in the poverty stricken class. If the movement should meet with universal support, the members would not be called upon for an assessment of a few thousand dollars a year. If we can get the county medical societies interested in this movement, there will be no occassion for work being done by outside forces.

The principal advantage to the physicians of Paducah, Louisville, Lexington, etc., would be in a large saving of your insurance.

I did not hear from several hundred men whom I wrote regarding the matter, and to make sure my figures were accurate, I followed up the losses of a large number of them, and they had no losses, and no report was expected, so that the average loss is really a high one.

The insurance companies now in the field use 40 per cent of the money they receive for insurance in paying underwriting expenses, agents and solicitors. Of every $100, $40 goes to pay the legitimate, but rather high, expenses. If we can organize a company in the American Medical Association, we will eleminate the agencies immediately, and that 40 per cent will be saved. My belief is, after studying the figures for two years and passing them about for inspection to insurance actuaries and business men, we can cut the price of insurance exactly in half and turn into your state society 10 or 15 per cent of what you are now paying.

I am anxious to get four or five state societies to go into a movement of this kind. If there are any questions I can answer, I will be glad to do so.

THE CHAIRMAN: Does this apply to indemnity insurance or loss from fire?

MR. WINFREY: Everything. Fire losses consume 25 per cent of the premiums paid.

THE SECRETARY: At four thousand dollars that would raise the average in Kentucky considerably.

MR. WINFREY: It takes 25 to 30 per cent of the fire and theft insurance to pay losses.

F. A. STINE: Does that include collisions and injuries?

MR. WINFREY: Yes, damage to property, everything that is ordinarily covered in your insurance policy.

THE SECRETARY: Under these circumstances the policies would be issued just as they are now. You can take indemnity insurance, or fire and theft insurance.

MR. WINFREY: The policy would read as you now have it. It would be no different from the insurance you are getting.

There are two ways to organize a company. First, we can organize as a stock company, physicians owning a nominal amount of stock which would pay from 7 to 10 per cent annually. The dividend would be in saving on the insurance, or you can organize as a mutual company to operate in more than one state. If you should be required to have a surplus of $200,000 (that sum of money sounds large), there would be no difficulty in raising the money in either way. When you realize that you have to pay as much money as you pay now, you will see at once it is not a poor investment.

I am here as Executive Secretary of the State Medical Society of Virginia, and I am not promoting a company with the idea of getting a fee out of it.

J. W. KINCAID: I heard an insurance agent make the statement that the reason rates had been advanced was because the insurance companies had nothing definite to go on when they first promulgated the rate, and it was the experience of the insurance companies as a whole that the business at the present time had not been a paying thing; that it was a losing business; that they did not make any money and were attempting to adjust rates that were put into effect this year.

I have been driving a Buick roadster, and I think I paid $18 or more for my insurance in two companies, one a liability company, and the other a fire insurance company, having two separate policies. I did not have any insurance but damage insurance on my own machine, but I was covered for liability damage to other machines. I think I am correct in regard to that rate, and that was more than I paid the year before.

I believe that physicians are entitled to classification; they are entitled to a less rate because fire insurance companies have a classification, and I do not believe liability insurance companies make any difference in the rate, whether the driver of the car is a negro, a man of some sense, or an idiot. Is not that true?

MR. WINFREY: Yes. I have had letters from insurance agents all over the country urging me to stay out of this movement; that the insurance business was a risky thing to go into. I am an old insurance man myself, and I know the eagerness with which they hold on to a business which is very profitable, and naturally they will not encourage you to go into it.

The stock companies uniformly operate on the agent system which requires 40 per cent in premiums to pay commissions.

Mutual companies employ salaried men to solicit business and they get strict instructions from whom to solicit business. One liability insurance company earns 32.5 per cent so that the businesss is profitable where discrimination is shown in the risks; other companies earn sums ranging from 29 per cent to 30.3 per cent and even 49 per cent, which is a clear profit that comes out of the insurance business. One insurance company shows a profit to the stockholders of 5 to 6 per cent on the business. As I have said, if discrimination is used in the selection of risks the liability insurance business is profitable. It is absolute folly to tell you in general terms that the insurance business is a losing one. The losing business is the truck business, the delivery wagon business, and the taxicab business.

Why do not these companies adjust their rates differently? If they lowered your rate and got a fair rate, they would increase the rates for the other groups, which would make insurance so prohibitive in price that people would not insure with them.

The agents own the companies. A stock company cannot operate without an agent. The business is enormously profitable at present rates where discrimination is shown in the selection of risks. The key to the problem is selecting risks among one group of people. Instead of listening to an agent who gives you general figures, if you were to ask him to give you exact information, he would stop talking about it.

Here is the exact information from a report covering their operations during the year 1921 where discrimination is shown in the selection of risks, the profit ranges from 10 to 50 per cent.

A DELEGATE: I am paying $42 a year on a plain old fliver in Jefferson County.

THE SECRETARY: I pay $53 on a Franklin touring car.

F. A. STINE: I am the unfortunate owner of a jitney which costs me $72 a year.

THE SECRETARY: In all probability, they overheard you saying that and raised your liability insurance on that account. (Laughter).

J. W. KINCAID: They are all charging the same rate. The rate is fixed for every car by the year and model, and it differs according to the age of the car and the make of the car.

MR. WINFREY: As to losses in the cities of the larger population, the reason why they pay the highest rates is clear. In the larger cities the traffic regulations are better enforced by the police. The best reports we have is from Washington, D. C., where the streets are broad, and there is less opportunity for accidents than in any other city in America; whereas in the small cities of Virginia and Wisconsin, and in cities like Louisville, Washington, Baltimore and Philadelphia, the losses are almost invariably a little less than 10 per cent of the cost of their insurance. There is absolutely no question that automobile liability insurance is the most profitable business they have.

You as physicians are careful in driving your cars for two reasons: in the first place, your car is just as much a part of your equipment as your operating instruments, and no one is willing to risk his business equipment in getting hit by a train or street car. As you know, many accidents are the result of carelessness, and you know the results of a broken arm, a broken back, or a broken leg. You do not think probably of these things when you are driving, but subconsciously they are in your mind.

P. H. STEWART: I would like to ask if the insurance companies do not regulate the rates according to the zones or density of population?

MR. WINFREY: Yes, they do.

P. H. STEWART: That may explain why the physicians in Jefferson County have to pay more for their insurance than physicians in Paducah.

MR. WINFREY: If a man who drives a Ford sedan should go back to Virginia he would pay $18 liability insurance; if he lived in Roanoake, $25; if he lived in Richmond, $30; if he lived in Louisville, $36, and if he lived in New York City he would have to pay pay $102.50 for the same insurance.

R. JULIAN ESTILL: I have carried this insurance for fourteen years and I have never had an occasion to call on the insurance company. I would not drive to the Palmer House here without insurance, and I would like to ask what the Kentucky State Medical Association will have to do to get into this organization that is already started.

MR. WINFREY: I insured five cars for physicians at Richmond some months ago and the bill was $5,000. Stuart McGuire, whom most of you know by reputation, has been carrying insurance for twenty years, and I said to him, do you realize how much you have paid out in automobile liability insurance in that length of time? It was ascertained that he had paid out something like $10,000 for insurance in the last twenty years. I said to him, how many losses have the insurance companies paid for you, your wife, and one or two others? He replied that he had not thought of that. The insurance companies had paid one small sum, and his chauffeur cost the company two or three hundred dollars.

In many insurance companies it has taken eight cents on the dollar to pay their liability losses.

When this matter is given any publicity you will hear from the insurance agencies, and you will be approached by various agents of liability insurance companies and they will urge you to stay out of this business; that they lose money every year. But you can tell them this: my friends, if you have been losing money every year, you ought to welcome with open arms an opportunity to be relieved of it.

A man in Cleveland, Ohio, wrote me that his company was losing money every year. I wrote back that if we were engaged in some philanthropic movement we should stop his company from losing any more money through physicians. I have not heard from him since.

As to the organization of a company, I am only familiar with the laws of one state, but it is immaterial in what state the company is chartered. To organize in one state the average amount of money required would be $100,000 and $56,000 surplus. If organized as a mutual company to operate under more than one state law, it would require $200,000 surplus borrowed from any of the doctors that go into it, and it would be as high as 10 per cent interest on the money invested. If three thousand physicians put $50 each in a company to organize it, they would get their entire expenditure back in about two years. If organized on a mutual basis you can lend the company any amount, the company will pay interest, and return it out of the earnings of the company. If such a company were to organize on a stock basis, I would gladly mortgage my home to buy all the stock I could buy. If organized as a mutual company, I would sell my house and loan the money I receive from the sale to the company at 8 per cent, expecting four or five thousand doctors to do the same thing. It is immaterial which you go into, one is as safe as the other.

THE CHAIRMAN: What about eliminating the overhead expense?

MR. WINFREY: The overhead expenses of two insurance companies with which I am familiar are 40 to 45 per cent underwriting. In certain mutual companies it is 11.2 per cent. I believe by operating your state societies the cost would be reduced to 10 per cent. There is nothing in the world easier than for an insurance company to collect premiums from a large number of people. There is no mystery about it. It is taking money from ten thousand people and paying the losses of three or four hundred.

You have an attorney in every city in Kentucky who could handle your claims and settle the cases out of court, as all good insurance companies do, if possible. You get identically the same service and the same payment of losses, and the cost is so negligible that you will be amazed. A bookkeeper under the supervision of the Secretary with a living salary could handle the entire insurance business of the 2,500 physicians in the State of Kentucky without the slightest difficulty.

THE SECRETARY: It would require one adjuster for each state.

MR. WINFREY: And a dollar per year from each policy holder.

J. H. BLACKBURN: Would the state association be a member of this organization?

MR. WINFREY: The organization does not exist at present. It bears no relation to the Medical Society of Virginia any more than the Travelers Protective Association bears on the insurance business. It is a separate business. But it should be under the control of a board of directors composed of two or three representative physicians, and a group of business men. It is unsafe for any business which would reach the magnitude that this business would if it turned over exclusively to a group of physicians. I honestly believe that. It it necessary to have a board of directors of ten men, three or four of whom should be physicians to see that you are getting what you are paying for and to see that your interests are being protected. Then there should be a representative banker say of Louisville, Lexington, Richmond, or Cleveland, or an insurance man to make up the number. This is a business proposition and business should not butt in on surgery. Have for your president and secretary of the board of directors men who know what is going on, and have them report to you that if business is not properly done, they should see to it that your interests are absolutely protected. Physcians should receive adequate representation on the board of directors, but the organization should not be under the control of physicians. I could back out myself and find a business man who would accept this proposition in fifteen minutes and ask him to serve on the board of directors. I took the matter up with a number of men in Richmond, Virginia, and they jumped at the proposition. They offered to furnish $50,000 if given common stock in the company, if organized on a stock basis. Four men offered to pay in $4,000 each if given control of the common stock, along with a few others who were willing to pay in from $1,000 to $7,000.

THE SECRETARY: You can get a man in Louisville to serve on the board of directors. You could get a man in Cleveland or in Indianapolis to do the same thing, or any other city.

MR. WINFREY: You pay the first year the full premium you have been paying to any other company. A physician in Louisville pays $46.50 on a Buick. That is my recollection based on the experience which I have given you. From the figures I have quoted, you can safely say your losses would consume $5 of that amount, and the expense of doing business should not exceed the same amount, leaving a credit the second year of $36.50. If a man continues insurance in that company the second year he would save $10 which would cover losses and expenses. He would pay ten times as much as necessary to pay his average losses. If a man pays $50 the first year, he can reasonably count on getting credit for the second year of $40, and during the second year it should not exceed $10. If he desires to pay into the treasury of the state association for handling the business, 30 per cent of that amount, with $10 coming from every physician in Kentucky carrying this insurance, it would mean an addition to the income of $12,000 to $15,000 a year.

THE CHAIRMAN: It is confined to physicians alone?

MR. WINFREY: I would not venture into any fields I am not familiar with. Once you open a proposition of this kind you never know when to stop. The business of physicians would furnish an income greater than the income from automobile insurance of any company operating in America. There is a field for the development of an enormous business. I would limit it to members of the organization, but I would not limit the stock holders. The money put in an insurance company when invested pays around 5½ per cent. You can buy real estate, 4½ per cent bonds, or real estate mortgage notes.

THE SECRETARY: Which do you think is the better, a stock company or a mutual company?

MR. WINFREY: The one that pays probably the biggest returns to policy holders is the mutual company, because there are no dividends to pay; the dividends are returned to the policy holders. If you are willing to accept a normal dividend of 8 per cent on the stock, you could have all the remainder, provided there are no reduced rates for physicians included, those who carry stock. You get exactly the same returns. The amount of money paid for insurance in one year, put out at 6 per cent, would almost pay their losses forever.

J. W. KINCAID: If one pays into a mutual company $50, I understand that if $10 of this amount is taken to meet expenses, there would be $40 left. Then, does he get 8 per cent on his $50 as a dividend with the privilege of paying a premum for the next year of $10 or practically that amount? Does he pay that in advance, or does he wait until the year's business is over?

MR. WINFREY: Yes.

J. W. KINCAID: He gets nothing back on the reduction of his premium. The remainder is working capital called a reserve.

THE SECRETARY: Yes, what they call their reserve.

MR. WINFREY: In liability insurance you do not build up that insurance as you do life insurance. If a thousand men go into life insurance at reduced rates, the money that each member pays in should be sufficient to pay the losses occuring during the year, and also some in addition which, invested at 3½ or 4 per cent, would pay the losses of the surviving men who paid into that company. With accident insurance the expected losses are incomparably smaller than the average because they are dealing with a limited number of men above the average in intelligence, care and prudence which they exercise in driving cars. A life insurance company cannot cancel a contract; a liability insurance company can cancel a contract any day it wishes, and when the end of the year is up you have parted company. A life insurance company is different from a liability insurance company. A stock company, or a mutual company has an assessment feature. That company has a clause in the policy which allows you to pay an assessment equal to the amount of premium you have paid in.

GEORGE A. HENDON: I move that this subject on automobile liability insurance be referred to the Council for consideration.

THE SECRETARY: A committee has been appointed to consider the subject and it was referred to the Council with the power to act.

A DELEGATE: Is this committee empowered to employ anybody in an advisory capacity in regard to this matter?

THE SECRETARY: Anything the committee recommends the House of Delegates and Council will want to do.

MR. WINFREY: I wish to urge that you secure the services of a man who is familiar with the subject, but I tell you frankly, any man engaged in the casulty insurance business is naturally biased. If I were in the ordinary insurance business I would not look with favor on the efforts of any man who came with the idea that he was cutting into my business. I cornered one general agent in Richmond and told him to stop all of his talk and told him frankly what his losses were in this group. My judgment is for you to get a man in the life insurance business or the fire insurance business, where he has no personal interest. If I took away from you an income which is profitable, you would not receive the proposition with open arms. I would urge that you get some big insurance man who knows the entire insurance business, either an actuary or a life insurance company. They know these figures. Get an actuary of some good life insurance company to give general information. He will not know anything about the casualty insurance business. If you pick out a selected group of men, they will tell you that the number of accidents is lower than those of the general public. If you get a good insurance company to advise with you, they will give you their honest judgment.

J.W. KINCAID: This matter in its ultimate analysis resolves itself into the individual choice of the members of the association as to what they shall do. I do not believe this House of Delegates has a right to apply to the members of the Kentucky State Medical Association to go into a thing of this kind, but there are still quite a few doctors who will use automobiles. I believe such an organization would be a good thing. We could recommend it, but I do not believe we can go any further than that. It is an individual matter entirely. We have about 2,500 members who have paid their dues this year. We cannot say that every one of them will have to take a policy in this organization. We can consider this matter carefully from every angle, and after being well informed, availing ourselves to every means of information, we can endorse the movement. That is as far as we can go.

THE CHAIRMAN: We could not enforce any one to take stock in it.

MR. WINFREY: Oh, no. I say this to you Kentuckians, if any outsider should come in on this proposition after the organization is perfected, it would be preferable for the members themselves to take a small amount of stock in it. I have talked with different business men who are willing to put thousands of dollars into this organization after they had passed judgment on it.

THE CHAIRMAN: Every man who drives an automobile wants indemnity insurance.

MR. WINFREY: Yes. He would pay the same amount the first year, an amount which would be ten times as much as necessary to get it back at the end of the year.

THE SECRETARY: If you made a reduction of 10 per cent the first year you would organize, you would have nine times as many as you expected. I would rather come in a little sooner, with a slight reduction at the beginning of the year with the expectation of getting a larger reduction at the end of the year.

MR. WINFREY: If I could get five hundred men to put up $500 a piece, I would put my money in on that basis. I would organize a stock company and, if necessary, mortgage my house to get some of the stock. I would like to have your endorsement of this proposition. If you will consider this matter carefully, it would help a great deal in putting the whole matter before the members of the Kentucky State Medical Association as a whole. If you do not raise the money the company cannot be organized on this basis. If it is not organized among physicians, I can raise the money in ten days in one town among business men who know it is a money-making proposition. I want your insurance mailed to Dr. McCormack without sending a man around to see you.

THE CHAIRMAN: That can be carried out through the county societies.

MR. WINFREY: Yes, that can be done by the men who handles malpractice defense and he can handle this just as well. Of course, you can give him an additional salary without the expense of employing a new man. As a matter of fact, I have never contested the loss of a physician. If a physician writes me he had a loss, he sends me the bill, and 90 per cent of the man's damage I send. You are a little above the general public when it comes to collusion between yourselves and some sharp man. Your moral average, when it comes to burning your own cars to get insurance, is above that of the general public. When you have a car stolen you are paying for it out of your own insurance.

As physicians, I want to take you out of the general class and put you where you belong from a moral point of view, in addition to giving you credit for careful driving.

THE CHAIRMAN: How many physicians are there who have been accused of burning their cars?

MR. WINFREY: None as far as I know. I feel reasonably certain that physicians are entirely above that temptation. You are the moral leaders of your respective communities; you are removed from that field of activity.

J. H. BLACKBURN: I would like you to explain if we get any portion of the payments that are paid in.

MR. WINFREY: With a company organized on a stock basis, the Kentucky State Medical Association would get a commisson for handling the business, say 10 or 15 per cent. But let me call your attention to the fact that the agent or organization gets the money.

THE CHAIRMAN: That covers all overhead expenses?

MR. WINFREY: Yes. If organized on a mutual basis you simply assign authority in your application for the company to turn into the state treasury the 10 per cent or 33 per cent dividends paid and it is returned to you at the end of the policy year. Since you are getting this by reason of your membership in the Kentucky State Medical Association, you are willing to contribute what is fair to your organization. If you should dictate that the state association shall have so much for handling the business, instead of getting back a $30 dividend, you would get back $20, and the society would be enriched to the extent of $10. In this way you would save more than half of the insurance and the state society could use the money profitably.

F. A. STINE: It would not interfere with the state laws?

MR. WINFREY: It is against the law to give a rebate or to guarantee a dividend or to make exceptions of any kind to any policy holder. Your dividend is your profit, and you can give it to me, to the United States, to the Associated Charities or to the Society. The company would not guarantee your dividend, but what is left over after paying expenses and losses. You have the privilege of disposing of the dividend in any way you, see fit and proper. You can give it to a church if you so desire. If you sign the legal binding instruction of the treasurer of the company to forward a check for one-third of the dividend to the state society, it is all right. It is a separate and distinct transaction.

J. H. BLACKBURN: That would be returned to the policy holder?

MR. WINFREY: As soon as you get this person on your membership list. Since it is to be used for the medical profession of Kentucky, no other person is entitled to it. None of it can go to Virginia, to Ohio, or to any other state.

THE SECRETARY: I move that this matter be referred to the committee with the request that they report at some subsequent meeting of the House of Delegates.

Seconded and carried.

THE SECRETARY: I have the report of Dr. Richmond, Chairman of the Committee on Scientific Exhibits.

The Secretary then read the following:

Report of Committee on Scientific Exhibits.

Granting without discussion that the unrestricted privilege of displaying their products at our meeting would be likely to be abused by certain manufacturers, it yet must be conceded that the general benefits to be derived from properly limited and supervised displays are sufficient reasons for their having become and continuing to be an interesting and helpful feature of our meeting. The various nostrums and patented products that continue to flood the country deserve and should have no such recognition. But it is a difficult task to distinguish between those manufacturers whose motives are purely mercenary and those who are constantly laboring for the advancement of medical science.

To the latter class we are indebted and in common with the entire membership of this body, granting them their merited share of credit for the present progressive tendency in the medical profession.

Certain concerns, including manufacturing chemists, publishers of scientific works and producers of surgical appliances, have by a vast outlay for research laboratories and equipment and the employment of scientific investigators, won for themselves recognition as advance agents for the noticeably progressive movement in medical science. Every member of this body knows these concerns, and a committee selected from our membership could be safely entrusted with the responsibility of granting display permits to those deserving this recognition and of denying the privilege to such as do not measure up to the scientific and ethical standards of our calling.

Many members of the Association, particularly those residing away from the commercial centers and consequently not so closely in touch with the newest thought within the profession, find it at times difficult indeed amidst the arduous duties of an active practice to inform themselves of advanced methods and tendencies. To those, and some throughout a laborious and continued practice we have numbered ourselves among them. Such exhibits as we are lending our endorsement to are a source of genuinely pleasant and profitable interest. In this effective manner science arrays in attractive display the latest achievements of laboratory, pen and workshop, and at times when our minds are diverted from routine channels and when we are more than ever interesting ourselves in progress and advancement.

This organization should with due scrutiny encourage those who consistently labor with us in our fight against darkness and misinformation to bring to us for our consideration the finished results of their efforts.

W. W. RICHMOND, Chairman.
ARTHUR T. McCORMACK, ex-officio.
JOHN H. BLACKBURN.

THE CHAIRMAN: What do you wish to do with this report?

J. G. CARPENTER: I move its adoption.

Seconded and carried.

H. P. Sights, Chairman, presented the report of the Committee on Publicity, as follows:

Report Of The Committee On Publicity

The meeting of the State Medical Society this week is of more than usual interest to the public in that one day, the 17th, is set apart for memorial day to Dr. J. N. McCormack, the great apostle of preventive medicine; a man that would have, if he could, made every cabin in Kentucky a palace of cleanliness and sanitation; and would have established in every home perfect defense against disease. The Committee on Publicity calls special attention to the citizens of this city and state to the first day's program of this meeting which will be the memorial service to Dr. J. N. McCormack. The addresses to be given on this day should interest every citizen who is interested in protection of health and prevention of disease. There will be heard some of the best orators of Kentucky. Something will be learned of the great idealist of the medical profession, a man who consecrated his life to protect Kentuckians and mankind generally from the dread enemy—disease.

The enemy which for untold ages man has struggled blindly against as his unseen foe; struggled helplessly and afraid, because of the nature of this great adversary he knew nothing of, neither could he see, hear nor feel it. It came and went like a specter in the night. Man knew it only by the havoc it wrought. He measured its power by the dead bodies of its victims. Wild beasts and poisonous snakes he had conquered, heat and cold, storm and calm; mountain heights and ocean depths he had learned to circumvent, or had made a minister to his needs; but still this silent and invisible foe stalked up and down this earth exacting its grim toll of life and death. Groping blindly man learned some things about this unseen enemy. He learned that it sometimes infected the water he drank or the food he ate, but he knew not how nor when. He learned that those who were seized upon by this foe were a source of danger to others and likewise their clothing and their home. In other words, he learned that diseases were contagious but but how or when he knew not.

Dr. McCormack was a hero in fighting this great enemy, and through his generalship he conquered for Kentuckians this foe. Handicapped as he was he fought with the courage of a Roman, and on tomorrow the medical men of the state will honor him here in this city. We hope it may be an inspiration that will result in blessings to the City of Paducah and state; inspire a cooperative effort and determination to protect health, eliminate contagious diseases, and lift humanity out of the mire of degeneracy. This hero, this conquerer was a blessing to mankind and will be here in the hearts of every doctor.

The Publicity Committee has had the full cooperation of both daily newspapers in a way that was most satisfactory, they devoting every day for a week, antedating this meeting, columns of information and some splendid editorials informing the public of the coming meeting. Especially have they dealt most kindly and generously in their columns in calling attention to the memorial services of our late Dr. McCormack, considering this service to be of special interest to the public.

This committee desires to recommend that the program covering the memorial service be published in pamphlet form. We think it would be an inspiration to the public wherever it is read. We also desire to express our appreciation for the courtesy and splendid manner in which our daily newspapers have furnished the public information in regard to this meeting.

THE CHAIRMAN: What disposition do you wish to make of this report?

T. A. FRAZIER: I move that it be adopted.

Seconded and carried.

THE SECRETARY: After seventeen years experience this Committee on Publicity is the best committee the Association has had in its history, and it has done the best work in preparing the public for the business of this meeting.

R. Julian Estill, Lexington, Chairman, presented the Report of the Committee on Medical Education, as follows:

Report Of The Committee On Medical Education

Prior to 1860, Kentucky had the highest medical standards of any state in the Union. This was during the flourishing days of old Transylvania Medical College, when the most eminent medical men west of the Allegheny Mountains were teaching in Lexington.

This condition was completely upset by the events of the Civil War, and following this time hordes of camp followers and mediocre medical men flocked into Kentucky where no standards were maintained. In 1888 the standard was again established which disqualified about 1,800 practitioners in the state. In spite of the fewer numbers of practitioners, the longevity period was increased by two and a half years during the next two decades. This is given to argue that the quality rather than the quantity of medical men is the real method of meeting the question of health and medical care of the community.

In the first place, your Committee is absolutely opposed to lowering in any way the present standards of medical education, except in so far as it may be necessary in the present emergency, not only because we do not think this will remedy the apparent shortage of physicians in the rural communities, but also because we realize what a calamity it would be to have Kentucky classed as an outlaw among the states, after having worked so long and successfully to bring our standards up to their present high plane, which gives us reciprocity with so many of the states.

We are convinced that the apparent shortage of physicians in the rural communities can and must be met by other means.

Dr. Billings, in a talk before the Kentucky State Board of Health, said that the problem in the rural districts was a purely local one, that if these communities would get good roads, erect schools and churches, and make themselves fit places for human beings to live in, there would be no shortage of physicians in such communities. It is only natural that a man from such a community, after spending from eight to ten years in preparation for medicine, will not want to go back to this primitive living condition, after seeing the better conditions in the cities.

We believe that the capacity and equipment of our present medical school in Kentucky should be increased to accommodate all of the students who apply for admission. We also believe that this congestion in our present medical school would be relieved if the State University could be equipped to give the first two years work to a part of the students, all of them taking the last two years in our present medical school.

We further believe that the present apparent shortage of physicians is not so real as figures would seem, but rather that there is an unequal distribution, many of the centers of population being over supplied at the expense of the less thickly populated districts.

One reason for this unequal distribution is the greatly overdeveloped tendency to specialization immediately after graduation. This we condemn very strongly as we are convinced that no man is competent to specialize in any branch of medicine until he has had a number of years experience in general practice. Without this very essential training he will of necessity very soon become a narrow man with a limited vision of even his own specialty. We believe that the one remedy for this is the laying of greater stress on the teaching of the general branches of medicine, having in view the making of general practitioners solely in the undergraduate medical schools, and leaving further training of the various specialties to the graduate schools, such courses being provided only for men who have had five to ten years experience in general medicine practice.

It would seem possible in a measure at least to provide medical aid to rural districts where there is a shortage of physicians by the establishment of hospitals in different communities having sufficient population in the surrounding territory to support them, these institutions to be directly under the control of the local medical profession.

We are strongly of the opinion that at least one year's internship in a good hospital should be required before conferring a degree in medicine or issuing a license to practice medicine.

In conclusion: Reports from various states in the Union show that this problem is much the same all over the country, and since the control of premedical requirements is directly under the authority of the Council on Medical Education, of the American Medical

Association, it is the sense of the Council of the Kentucky State Medical Association that a vigorous protest be sent to the Council on Medical Education of the American Medical Association, stating fully the gravity of the situation in Kentucky and demanding that they revise their requirements to meet a practical problem instead of autocratically standing as a stumbling block to the education of a sufficient number of general practitioners to meet the shortage of physicians in Kentucky and many other states.

It is further recommended that copies of this protest be sent to every state medical association in the Union, to the President of the Board of Trustees and the Dean of the Medical Department of the University of Louisville, Kentucky.

We further recommend that the House of Delegates of the Kentucky State Medical Association empower the Council to take such steps as they find necessary, including the starting of another medical school in Kentucky, if necessary, to educate enough physicians to supply Kentucky with the doctors that are needed.

THE CHAIRMAN: This is a splendid report. What shall be done with it?

R. C. McCHORD: I move its adoption. Seconded.

THE SECRETARY: I would like to suggest with Dr. Estill's consent and the consent of his committee that the motion to adopt be amended by adding the request of the State Board of Health, that in the future applicants for reciprocity, who have become specialists within five years after their graduation, shall not be accepted in Kentucky, and that the Board as rapidly as possible put in operation that section of the statutes, which provides for the examination of applicants for limited practice by examiners of that specialty, so that the profession in Kentucky may be protected and the health of the people of the state may be protected from too early specialization.

I make this suggestion with the idea of getting the views of the members of the House of Delegates on this matter. The State Board of Health has been considering this since the passage of legislation two years ago. We want to do exactly what the profession of the state wants done for the people of the state. When the law licensing the various cults was enacted, a provision was inserted in it authorizing the board as rapidly as any branch of the profession desired to limit its practice to any particular subject, such as surgery, diseases of the eye, ear, nose and throat, to take measures so that they could organize within the state association and nominate to the State Board of Health seven of their members who are doing that sort of work in the state, and then from these seven members three would be selected as examiners to examine all who desired to receive that special certificate. This has been considered to be the most marked step in advance that has been made in any state. We do not want to do this unless it meets with the approval of the House of Delegates and we are instructed by the House of Delegates to do it.

I want the profession to understand this before any attempt is made to invoke the statutes. An important point about it is the general practitioner can do anything he is qualified to do. That is what general practitioner means. When he hold himself out as a surgeon and limits himself to the practice of surgery and not to general practice, it is the belief of the general profession, although that belief has not been heretofore made effective, such a man should be qualified, and a man could adopt any specialty he sees fit because the law on the subject has not been invoked. If his qualifications are passed on by a committee who are desirous of seeing qualified men admitted, they should be sworn officers of the state the same as members of the State Board of Health are in other respects. This would be a safeguard to the public and the profession, and it would prevent the tyro immediately, after leaving a medical school from limiting his practice when he does not know what he is going to limit his practice to. I, like many others, when I left medical school, did not know what I could do. I did not know even anything about what I could not do, and it took some time for me to evaluate myself and to know what I desired to do. The same is true of many others. After twelve years my practice became limited to surgery. I believe some time limit should be placed on our profession regarding the adoption of a specialty. The general practice of medicine is the greatest vocation in my mind in the world, and those of us who limit our practice to a specialty lose something by doing it. The general practitioner of medicine is on a higher plane than any other vocation. This matter should receive the attention of the House of Delegates along with the other very important matter suggested by the Committee on Medical Education in this carefully prepared and well considered report.

R. J. ESTILL: I accept the suggestion made by the Secretary and move that it be incorporated in the report of the Committee on Medical Education.

T. A. FRAZER: I second the amendment of Dr. Estill.

The motion to adopt the report as amended was put to a vote and carried.

THE CHAIRMAN: Is there any new business to come before the meeting?

T. A. FRAZER: Before we adjourn there is one matter I would like to bring before the House of Delegates. There are some religious periodicals advertising the most flagrant of patent medicines, and the doctors of Kentucky should pass a resolution condemning in toto patent medicine advertisements in religious journals, and a copy of such a resolution should be sent to each religious publication in the State of Kentucky. I make that as a motion. Seconded.

THE SECRETARY: I move to amend that the Committee on Resolutions be instructed to draft such a resolution condemning all advertisements of patent medicines in religious journals.

The amendment was seconded, accepted, and the original motion as mended was put to a vote and carried.

THE CHAIRMAN: Is there any new business to come before us, or are there any other complaints? It is suggested by Dr. McCormack that at these meetings you have a right to bring out any complaints and to suggest any measures that can be offered for the betterment of mankind and the profession in general.

THE SECRETARY: I move we now adjourn until 8 a. m. Tuesday, October 17.

Seconded and carried.

The House thereupon adjourned.

TUESDAY, OCTOBER 17—THIRD MEETING OF THE HOUSE OF DELEGATES.

The House of Delegates met at 8:40 a. m. and was called to order by President Frank.

The Secretary called the roll and announced a quorum present.

THE SECRETARY: I would like the privilege of introducing to the House of Delegates a man who is of especial importance to the physicians of the state and has been for a good many year. The Co-operative Medical Advertising Bureau of the American Medical Association have been attempting to make some arrangements with one of the larger conservative financial investment houses to announce to the physicians of the state a firm they could depend upon and could do business with in their investments in a way which would insure the safety of the principal and assure a conservative income which can be secured from the investment of money.

We all realize, particularly those of us who have taken any interest in the question, that the mailing list of doctors is considered one of the most active score lists by investment houses. They buy oil stocks, silver stocks, and things that seem to promise large returns on a gambling basis without rhyme or reason, and for that reason the American Medical Association has been attempting to secure some sort of investment guide for the members of the medical profession, and recently through the activity of the co-operative advertising bureau, which is managed by the joint state medical journal through the American Medical Association, the firm of E. H. Rollins & Sons in Chicago, with branches in New York, Boston, and all over the country, with this gentleman representing them in Louisville, they have been given the exclusive privilege of making announcements through the state journals to the medical profession.

I want to introduce to you Mr. John Churchill, of Louisville, who is their representative in Kentucky and is available for advice to any member of the profession who desires to make investments.

MR. CHURCHILL: Anything that E. H. Rollins & Sons can do to help your investment securities will be gladly done free of charge. We make our money by sales of the different investments. We buy bonds of different municipalities that are on the market, and we invest none of our money in bonds that are not amply secure. We have a corps of engineers and expert accountants, and we take nothing on faith. We send our engineers to investigate to see whether companies are making the money that they claim and what the prospects for investment are. We do not claim that any securities will make you tremendously wealthy by the enhancement in value of those securities. In 99 times out of a hundred the principal will be returned to you on the date of maturity. During the years you have security, your coupons will be paid whenever they fall due.

THE PRESIDENT: The next order is the Report of the Committee on Health Problems in Education.

THE SECRETARY: Dr. Tyler, Chairman of this Committee asked that it be passed for the present.

THE PRESIDENT: The next thing will be the Report of the Committee on Automobile Liability Insurance.

J. H. BLACKBURN: The Committee on Automobile Insurance desires to report, that following last night's discussion it recommends that the House of Delegates approve in principle the proposition that automobile liability insurance in a selected class, such as physicians, is a tremendously paying concern, that it is a profitable business, and recommends that the Council be authorized to make such investigations and take such steps as it may deem necessary in reference to the possibility of forming an organizatoin on the basis of an automobile liability insuance company, either a mutual or stock company, and of recommending it to the profession of the state in cases it finds it is feasible to enter into it.

I move the adoption of the report.

Seconded and carried.

J. W. KINCAID: I move that we adjourn to meet tomorrow evening at 7 p. m.

Seconded and carried. .

The House thereupon adjourned..

WEDNESDAY OCTOBER 18—FOURTH MEETING OF THE HOUSE OF DELEGATES.

The House of Delegates met at 7 p. m. and was called to order by President Frank.

The Secretary called the roll and announced a quorum present.

THE PRESIDENT: Is there any unfinished business to come before the meeting?

THE SECRETARY: We have the motion of Dr. McChord, Chairman of the Council, namely, by vote of the House of Delegates we are to continue publishing THE JOURNAL as it has heretofore been published, publishing all the articles read before the Association, with the contingency that if it was found necessary to use any part of the surplus this year, the dues would be increased to $5. Dr. McChord moved that the dues be made $5 for 1923.

THE PRESIDENT: You have heard the report of the Chairman of the Council by the Secretary. Is there any discussion?

It was moved and seconded that the report be adopted.

Carried unanimously.

THE PRESIDENT: The next thing is the Report of the Committee on Liability Insurance for Malpractice.

THE SECRETARY: Dr. Byrne, Chairman of the Committee is absent, but I had a telephone message from him today and he recommends that the Association authorize the Council to take such steps as may be found necessary to organize the members of the Association into a voluntary indemnity insurance company against suits for malpractice for those of the members who desire to purchase such insurance. I think possibly it would be well to explain that.

At present, the minimum fee for indemnity insurance is $15. At that price, as nearly as we can tell from our investigation, we have been carrying for the past year about a thousand members who are carrying indemnity insurance. It is costing approximately $15,000. All of the hospitals owned by members of the Association carry indemnity insurance. It is proposed that we voluntarily carry that insurance, not form an insurance company, but instead of paying $15 to some corporation, we pay it into the treasury of the State Association, where it would be carried as a special fund, and from that fund any verdict be paid. That has nothing to do with protection of the members as now protected through carrying on the defense. In the fourteen years during which we have had malpractice defense, we have lost three suits and settled three. The total amount paid out for these suits is not one-half of what the doctors of the state are paying each year for indemnity insurance. That money can be saved by such a voluntary organization. According to our best estimates, it will not cost more than three dollars. Our proposition is that each member by paying the same amount as previously, namely, $15, at the end of the year he is notified of the amount that has not been expended, and the unexpended portion is credited on his next year's indemnity insurance. If it is three dollars, he will be credited with $12 on his next year's insurance and his indemnity carried for $3, saving about a dollar for each year to build up a reserve fund. This would not involve malpractice insurance against unjust malpractice suits. Every member whether he takes out this insurance or not would be defended. It is for those who carry insurance for indemnity verdicts. We are paying half the cost and the attorney's fees in every trial where a man in insured. Suppose you are insured and are sued for malpractice, the Kentucky State Medical Association pays one-half of the expenses of the trial.

I move the adoption of the report. Seconded by Dr. Anderson.

J. W. KINCAID: It occured to me, Mr. President, that in view of the radical departure contemplated in this step and the lack of general publicity with the profession throughout the state, it would be perhaps wise not to take this action at this time, but have it made a special order for the second meeting of the House of Delegates at the next annual session. Personally, it does not cut any figure with me; I do not carry indemnity insurance, but it is a pretty large proposition, and I believe if the matter is fully explained in various issues of the KENTUCKY MEDICAL JOURNAL prior to the annual meeting, every member would be informed and the delegates would be informed of what action they should take. I realize that those in the larger centers of population are well represented and are chiefly concerned, but if this matter is brought up with sufficient notice, there cannot possibly be any complaints on the ground that not sufficient notice was given before such action is taken.

THE SECRETARY: This matter has been discussed at the last two meetings of the Association, and there was a free discussion of it in THE JOURNAL. If it is going to be discussed, we do not want to advertise that such an organization exists; it makes a prey for the shyster. It should be carried to the constituent societies and discussed freely there rather than out in the open.

J. W. KINCAID: You can simply say in the KENTUCKY MEDICAL JOURNAL that this matter will be brought up for discussion and action at that meeting.

THE PRESIDENT: I believe that the better plan would be to carry on personal communication with those men who are at the present time carrying indemnity insurance. We are carrying indemnity insurance. I believe that every man who is carrying indemnity insurance could possibly do what we would be perfectly willing to do if he were communicated with, and that is, while this thing is in the course of establishment, let him pay into the fund which is to be held for this purpose an amount similar to that which he is paying to an indemnity company. Then you have something to start with next year. If then the Society desires to adopt this matter, he should be credited with what he has paid in, and then if each man should pay into this fund the same thing, we would at that time have something to start with the first year. I think it has been the rule in the past in regard to any period of years, that unless you have a great number of men subject to suits, you have no criterion of what may happen to us the next year or the year after. This would give us a fund to start with. I would suggest the Secretary make a request of these men.

W. B. McCLURE: I should like to inquire if in this proposed plan there is any limit to the amount of judgment you would care to pay? For instance, if you get one or two judgments of $20,000 a year, it would soon wipe you out without any protection to the others remaining in.

THE SECRETARY: That is a matter for the House of Delegates to determine. I believe that if any number of members should associate themselves for mutual protection, they should be mutually protected under any and all circumstances. The fact that we have never had a verdict for the State Association for more than $5,000 does not mean we are not going to have one. That may happen at any time, but personally I would favor protecting members completely. It would be better to divide this amongst a thousand men who would carry insurance because they are the most careful men and the greatest men in the profession than to risk the dangers of one man doing it. All the suits brought against the Kentucky doctors—at least nine out of ten—have been brought against general practitioners, and not against men who are doing special practice. Naturally hospital practice does not subject one to the same opportunities for lawsuits because the records are kept carefully. There is no opportunity for contributory negligence which makes the danger of malpractice in the country greater, where the witnesses are against the doctor. The general practitioner, as a rule, has more real property than those who live in cities, because he owns his own house and is in greater danger of malpractice suits than is the city doctor who is covered by insurance.

THE PRESIDENT: Is it not a fact that companies employing large numbers of men find that it pays to carry their own insurance?

THE SECRETARY: Yes, they do it constantly.

J. H. BLACKBURN: To protect against unjust malpractice suits, I understand the State Committee and the county society must determine whether the State Association shall defend a man against malpractice suits; that the Committee on malpractice suits and the county society are to determine whether a man shall be defended or not. I understand that there is no case where the state committee and the county society refuse to defend a man if that man happens to carry this insurance if any damages are brought against him.

THE PRESIDENT: It is not a question of what the state committee and the county society shall determine, but what were the findings by the court. Members of the committee have been guided by the county societies in the matter. At the present time there is only one suit brought where it was determined it was not a suit. In this case a man was drunk and amputated a leg and put a flap on the wrong place. It was clearly a malpractice case, the State Board of Health revoked his license, and he left the state. In that type of case after the verdict was rendered against him, he did not have anything to pay it, and if a verdict is rendered against that man while he is carrying such insurance, he would be defended. We are liberal in regard to membership. Quite frequently a number of members have been defended who have paid their dues regularly for a number of years, but they were delinquent at the time something happened. We are pleading for no opportunity of getting out of helping doctors, but we are trying to constructively help them. That is the difference between an organization with Dr. McClure, for instance, at the head of it, and one conducted by Smith who is making 90 per cent.

J. W. KINCAID: Would any member of this society be accepted in this insurance company without any investigation?

THE SECRETARY: Any member is entitled to insurance.

J. W. KINCAID: The insurance companies will not do that; there are lots of people they will not insure.

PAUL KEITH: I understand from a report made a day or two ago that osteopaths are admitted as members.

THE PRESIDENT: They are not admitted as long as they practice as osteopaths.

THE SECRETARY: They have to graduate in medicine before they can be admitted.

VERNON BLYTHE: They must have graduated from a medical college and be licensed by the state. That is the condition under which we take in former osteopaths.

J. W. KINCAID: We had one who graduated in medicine, but even now his chief practice is osteopathy, but he writes prescriptions. He is accepted under his diploma and is registered in both ways.

THE SECRETARY: Before an osteopath can be licensed as a physician he must have graduated from a regular recognized medical college.

W. E. GARDNER: I would like to ask the Secretary how many members of the Kentucky State Medical Association we have.

THE SECRETARY: Two thousand and sixty-five.

W. E. GARDNER: If one-half of that number was included under this insurance plan we would have $15,000 as a small reserve fund to start with.

THE SECRETARY: If you look at the reserve fund in the light of the larger reserve fund carried by many organizations together with the assets of the Association, it would not be quite so small. In addition to that, I will say that in fourteen years the largest verdict we have had against us has been $3,000. I really believe this fund would be ample.

THE PRESIDENT: I would like to read to you the following from Chapter XII, Section 5, of the By-Laws: "Each county society shall judge of the qualifications of its own members, but as such societies are the only portals to this Association, every reputable and legally registered physician who is practicing, or who will agree to practice, nonsectarian medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every physician in the county to become a member."

What is your wish in this matter? You have heard the motion to adopt the report, and we have given a wide range to the discussion.

THE SECRETARY: I move that the Council be authorized to take such steps as it may deem necessary, after notifying county societies, to make a mutual arrangement for furnishing indemnity against verdicts in malpractice suits for such of our members as join such a voluntary organization, with the provision that any payment be limited to $5,000.

C. Z. AUD: As a councilor, I am urged to secure as many physicians in the state as possible to join our organization. I have been urged to get men to join the society. I positively refuse to allow my name to sanction this; if we urge everybody to get into the society, how are we going to defend them? Men who enter this society or organization should be very careful whom they admit. There are many incompetent physicians in Kentucky, and I know it as councilor. I would advise you, if you adopt this, to be cautious about whom you take into the insurance organization. You can take everybody into it.

J. W. KINCAID: This is a voluntary affair entirely. That being so, I do not believe it concerns the House of Delegates nor Council except that the men take such action as they desire to take. Furthermore, if it is contemplated to use any part of the funds of the Kentucky State Medical Association, even the amount that would be accumulated by this extra payment by these men, I am opposed to it, and a great many of the members in the State Association that I know will be opposed to it. This resolves itself into the same state of affairs as automobile insurance, and we simply did not do anything with it, and we cannot do anything with it.

THE SECRETARY: The Council was authorized to take such action as was necessary in regard to automobile liability insurance, and that authority has been given by the unanimous vote of the House of Delegates. Medical defense is a voluntary organization.

C. Z. AUD: I wish to express my conviction that the doctors of Kentucky can work out this problem provided we get levelheaded men to take hold of it. While I am out of danger, I want to tell you that you ought to be prepared to defend yourselves.

JAMES A. ORR: Why limit the amount to $5,000? It seems to me a better plan would be to make the amount the same as insurance companies. They will insure you for the $15 you pay in. If we pay in $15 to this fund and limit the payment to $5,000 which is more than we want to carry, we must pay an additional insurance to take it out in other insurance companies.

J. W. KINCAID: We are losing sight of another fact: The insurance companies do not charge the same sum to all doctors. In their advertisements they say it is so and so. If they get a report through the mercantile agencies there is an additional sum I know. Like the old mutual life insurance fraternal organizations, they used to issue policies to pay everybody $2,000 or $5,000; they made an assessment of $1.10 per head to men sixty-five years of age. They all died or raised their rates or changed their plan of doing business. When you put this thing on an absolute equality with a limited number of men, I do not see that it is going to be feasible at all. We have not money enough to do it and it is not fair.

PAUL KEITH: As to the question Dr. Kincaid brought up a while ago about automobile insurance, the members seem to have put a quietus on it. While this is a purely voluntary matter for men to join this organization, I take it that the membership of this Association would be behind it. If we take everybody in, we must do it right.

The motion of the Secretary was put to a vote and declared carried.

The motion to adopt the report was put and carried.

THE PRESIDENT: The next matter before the House is the Report of the Committee on County Hospitals, W. A. Guthrie, Franklin, Chairman.

THE SECRETARY: Dr. Guthrie is not present and the committee is not prepared to report.

THE PRESIDENT: Report of the Committee on Medical Ethics, B. F. Zimmerman, Louisville, Chairman. (Passed).

The next order of business is the Report of the Auditing Committee.

THE SECRETARY: This Committee has not finished its work.

THE PRESIDENT: The next is the Report of the Committee on the Report of the Council.

The Secretary presented this report, which is as follows:

REPORT OF THE COMMITTEE ON THE REPORT OF THE COUNCIL.

The Committee on Report of the Council desires to report that on September 1, 1922, the Council made a very complete report to the House of Delegates, laying special emphasis on the following facts:

There are about 400 active practicing physicians in the State of Kentucky who are not members of their county societies, and consequently are not receiving the Kentucky Medical Journal.

A recent survey of the state indicates that there are about three hundred places in the state where physicians were formerly located which at present are without active physicians, who have been decreasing at the rate of about 75 per year. This is a serious problem worthy of further investigation.

It seems that a state survey would indicate that between 25 and 30 per cent of all active cases of tuberculosis are not under treatment of physicians, and the Council strongly urges the necessity of public education along this line.

The Council further calls attention to the fact that while in 1888 there were more than 1,500 more physicians in Kentucky than now, it also shows that more than 1,700 of these men were totally incompetent to practice medicine. However, since that time the average length of life has been increased more than ten years.

The Council insists upon citizens of the state being immunized against typhoid fever, and it recommends that the various county societies hold public meetings to enlighten our people in regard to prophylactic measures.

The Council urgently requests the profession to see that all of the medical legislation which has been enacted through the work and influence of that great medical statesman and jurist, the late Dr. Joseph N. McCormack, be strictly enforced.

Our Committee in behalf of the House of Delegates wishes to express its great gratification for the zeal with which the members of the Council have conducted their arduous labors and assure them that both the House of Delegates and the county societies which it represents are ever grateful for their splendid services.

Respectfully submitted,
Hugh E. Prather, Chairman.

THE PRESIDENT: You have heard this report. What will you do with it?

T. A. FRAZER: I move that the report be adopted.

Seconded and carried.

THE PRESIDENT: Report of the Committee on Resolutions, George A. Hendon, Louisville, Chairman.

THE SECRETARY: No report.

THE PRESIDENT: Report of the Committee on Miscellaneous Business, W. B. Smock, Greenville, Chairman.

THE SECRETARY:: No report.

THE PRESIDENT: Report of the Committee on Crippled Children, J. D. Trawick, Louisville, Chairman.

J. D. TRAWICK: I am not yet ready to submit a complete report for the reason that our work has only recently been begun. Early in July this Committee was requested to make a temporary investigation into the condition, location and status of crippled children in a few Eastern Kentucky Counties. The chairman of the committee had occasion to make a very thorough and rather exhausting trip. We went through Harlan, Letcher, Perry, Knott, Breathitt Counties. One of the pleasant compensations in connection with the trip was that we were traveling with President Hutchins of Berea College. We were furnished letters in advance from the Secretary's office to the County Health Officer and to doctors and public health nurses in various health centers in these counties.

The Secretary of Harlan County Medical Society reported of, his own knowledge that there were about one hundred crippled children in the region of Harlan, he estimated that there were over two hundred crippled children in Harlan County. It was estimated by the Secretary of the County Society at Hindman that there were two hundred and fifty crippled children in Knott County alone, ranging in ages from two or three to sixteen and eighteen.

In Jackson we saw many crippled children, tubercular backs, tubercular hips, chronic osteomyelitis, paralysis and club feet. There were fifteen or twenty in Jackson alone. The doctors in Breathitt County estimated that there were two hundred and fifty crippled children needing attention.

In other words in five counties we found about eight hundred crippled children needing attention. In three counties in the western part of the state there are possibly two hundred and fifty crippled children, so the number for the entire state quickly mounts to huge proportions. We are finding ourselves face to face, not with a mere sentimental thing, but with a problem which challenges the best endeavor of all of us. At the lowest estimate there are at least one hundred crippled children in each of the one hundred and twenty counties in Kentucky, or a total of between ten thousand and twelve thousand for Kentucky to care for.

We brought back the facts to Dr. McCormack and had a very serious interview with him. He immediately did the graceful thing of passing the buck. He instructed us to follow our own plan for further procedures.

Our first move was to see Superintendent Colvin at Frankfort, who immediately agreed to take over the first part of our program. He has written to his school teachers in every county in the state asking for their co-operation in locating the cripples. Our plan tentatively, is as follows:

First, ,we are asking that a definite survey be made of the state that we may have a uniform basis for our work. Second, we are asking that the educational, medical, and philanthropic forces of the state unite in the effort to meet this situation. Third, we want the lesiglature to be approached at the proper time to provide for enabling legislation so as to meet the problem of handling the cripples in the state.

As I have previously said, your committee is not yet ready to make definite recommendations because the problem is too large. I may say to you frankly, our first impulse was not to tackle this job. But the deeper we get into it, the more impressed we are that we must not be found wanting. These crippled children must be cared for. We are going at the work quietly; we are asking for no publicity yet. We are looking into the movement that is being carried on with a certain amount of success in Ohio and other places, and we would respectfully request continuance of the committee until a further and more definite report can be made.

THE PRESIDENT: The chair wishes to compliment the chairman of this committee on his report. Every doctor in Kentucky and every layman is concerned in this movement. We feel also that this is a matter with which the orthopedists of the state are especially concerned, and I am sure that if the orthopedists know the conditions in the state, they will take this matter in hand and this Association will endorse any report this committee makes.

The chair is aware that a number of children from the eastern part of the state have been taken charge of by the Rotary Club of Cincinnati. We believe that if our orthopedists are as active as those of Cincinnati, this matter will be looked after in this state.

We will extend the time of the commitee for a complete report.

W. L. Tyler, Curdsville, Chairman, presented the following report of the Committee on Health Problems in Education, as follows:

HEALTH PROBLEMS IN EDUCATION. NON-ATTENDANCE OF SCHOOL CHILDREN: Many children out of school are suffering from chorea, hookworm, ground itch, and etc. A more complete survey by health boards could detect and eradicate the physical ills causing such nonattendance.

RURAL CONDITIONS OF CHILD HYGIENE: The rural school still furnishes the largest field for public health work. More children are found with physical defects in farming communities than in towns and cities. Group life, supervised play, and recreation centers along with health centers and clinics should be established. It is necessary that those doing social and health work in the country should have a sympathetic understanding of what farm life means and of the special problems and conditions of rural communities.

DELINQUENT CHILDREN: Careful studies of delinquencies and behavior disorders of children have shown want, neglect, bad environment, lack of recreation, and schooling during the first twelve years of life. Many of these children are shown to be mentally defective. Statistics show, that more than 90 per cent of the prostitutes are mentally defective. Society should realize that these women are mentally sick from childhood, because of its failure to deal at the proper time with the contributory cause of such diseases. It is claimed that 50 per cent of those brought before the juvenile court are mentally defective from cause which might have been removed had society and community been on the alert. The method to be applied in dealing with crimes against society are similar to those used to prevent such physical maladies as tuberculosis, malaria, smallpox and typhoid fever. Mental hygiene should be taught and practiced in every community, thus gradually preventing mental and social diseases.

THE POORLY NOURISHED CHILD: Poverty figures largely in the malnutrition of of school children. A per cent of poorly nourished children are suffering from diseases, such as bad tonsils, teeth, adenoids and some other physicial defects, which are amenable to treatment by family physicians or health clinics. Some cases of malnutrition, no doubt, are due to overwork, insufficient or unsuitable food. Many, no doubt, suffer not from lack of proper food so much as from proper preparation of food by mothers. Home demonstrators and other allied workers can find a great field here for doing service to the mother, the child, school, and society. The importance of improving the physical conditions of these children to such an extent that they may possess normal mental faculties, is so great that every practical means of amelioration should be utilized.

ALLIED CO-OPERATION: The unit of education is the school, church, and club of each individual community. These are the channels through which knowledge pertaining to better health shall to a great extent be promulgated. The public feel that they can rely on the physician for information relative to the prevention, control, and cure of diseases. The individual physician should, and no doubt does, at all times, realize his specific obligation to progressive and constructive public health problems. There is an apparent lack of interest in public health on part of average laymen. There seems to be a need for organized community effort which can expect to have the co-operation of the community and the medical profession in an effort to promote public health. In counties where there is no all time health officer,the county board of health should be composed of active members (doctors), selected from various parts of the county and drawing a per diem salary, having regular dates to consider public health questions and the best means of disseminating such knowledge to the public. Some of these meetings should be attended by some representative of the State Board of Health which would keep the county board in touch with the state; and each individual member of the county board could perfect an organization in his respective community through the school, parent-teacher association, club, and churches. This organization would close the gap between the community, the county, and state health departments.

W. L. TYLER,
W. E. GARDNER,
H. E. PRATHER.

THE PRESIDENT: The chair wishes to commend the chairman of this committee for this excellent report and believes he is expressing the opinion and appreciation of every member of the Association that such a report not only shows deep thought and study of social conditions but an analysis which, as I see it, is unsurpassed. I think such a report as this the Association wants.

What is your desire with regard to the disposition of this report?

CHARLES FARMER: I move that the report be accepted and published.

Seconded and carried.

THE PRESIDENT: The next report is the Report of the Committee on Compensation and Health Insurance, of which C. G. Arnold, Louisville, is Chairman.

The following report was presented:

REPORT OF COMMITTEE ON COMPENSATION AND HEALTH INSURANCE.

Section No. 4883 of the Kentucky Law on Compensation Insurance reads as follows:

"Medical, surgical and hospital treatment; first aid, in addition to all other compensation herein provided, such medical, surgical and hospital treatment, including nursing, medical and surgical supplies and appliances, as may reasonably be required at the time of the injury and thereafter during disability, but not exceeding ninety days nor exceeding a total expense to the employer of more than one hundred dollars ($100.00) by order made within that time, direct an extension of said period of treatment or direct an extension of said limit of expense to not exceeding two hundred dollars ($200.00) to cure and relieve from the effects of an injury, shall be furnished by the employer, and in case of his refusal or neglect reasonably to do so the employer shall be liable for the reasonable expense, within the limits of this section, incurred by or on behalf of the employee in providing the same. In the event of an emergency the employee shall have the right to call in any available physician or surgeon to administer such first aid as may be reasonably necessary at the expense of the employer within the limits of this section. (Id., Sec. 4, as amd. March 22, 1920, c. 37, p. 163. Sec. 1.)."

The question of health insurance has been agitated, but at the present time there is no law in Kentucky on this subject.

The majority of the medical profession in the state consider the compensation law as working with a hardship on the physician. It would seem that any health insurance law would be a further handicap to the private physician and be a step nearer state medicine.

C. G. ARNOLD, Chairman.

Upon motion, the report was adopted.

THE PRESIDENT: Another committee that has not reported is the one on Legislation and Public Instruction, V. A. Stilley, Benton, Chairman.

THE SECRETARY: The committee asks for further time.

LEWIS J. McMURTRY: I move that it be granted.

Seconded and carried.

THE PRESIDENT: Is there any other business to come before the House?

J. B. Lukins, Louisville, Chairman, presented the following Report of the Committee on the JOURNAL.

REPORT OF THE COMMITTEE ON THE JOURNAL.

Your Committee on the MEDICAL JOURNAL begs to submit the following report:

During the past year THE JOURNAL has appeared in our mail regularly each month. It is always clear, fresh and filled with helpful up-to-date reading material. It is well printed and well edited, excelling most state journals and comparing favorably with those with a national circulation. We have 26 pages of advertisements, all of the very high class. This year all papers submitted have been published entailing an added cost of $1,000.

Last year the average number of pages in each issue was 84, this year it has required 124. The disbursements have been as follows:

Business manager's salary	$1,165.00
Printing JOURNAL	4,282.22
Postage on JOURNAL	175.00
Cost of paper	1,438.68
JOURNAL, advertisement commissions	95.65
JOURNAL sundries	1,312.04
Business manager's sundries	114.66
Total Journal	$8,583.25

We are informed by the Business Manager of the JOURNAL, that if this coming year all the articles submitted are to be printed, it will be necessary to raise the dues from $4 to $5 to take care of the increased expenses.

We wish to call attention to the fact that during the whole year there have been 95 county societies that did not furnish a single paper to the JOURNAL, and there are 15 others who only furnished one each. This is a deplorable condition and we suggest that some steps be taken to interest these county societies that have been so lax in this respect.

Respectfully submitted,

J. B. LUKINS,
G. G. THORNTON.

THE PRESIDENT: You have heard this excellent report. Without objection it will be received and take the usual course.

Is there any further business?

PAUL KEITH: I have been requested by a few members who are not delegates to present the following amendment to Chapter IV, Section 2, of the By-Laws: That the last twenty-four words of the last paragraph of Section 2, Chapter IV, be stricken out and in lieu thereof the following be written: "Or any one or more of its sessions."

An alternate elected by the county society shall have the rights and privileges of a regularly delegate.

Attendance shall be construed as meaning being present in the place where the annual meeting is held as provided by Section 1, Chapter II and having registered as a delegate.

Section 2, Chapter IV as amended shall read:

"Each component county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate. In case the regularly elected delegate is unable to attend the annual meeting of the Association, or any one or more of its sessions, an alternate elected by the county society shall have the right and privilege of a regularly elected delegate.

Attendance shall be construed as meaning being present in the place where the annual meeting is held as provided by Chapter II, Section 1, and having registered as a delegate."

THE PRESIDENT: The chair thinks that this amendment to the By-Laws really incorporates amendments of different chapters and should be made up to amend two chapters and the paragraph thereof. The chair would ask Dr. Keith to analyze this carefully and arrange it so as to show clearly which chapters of the By-Laws it is desired to amend. If the chair is not mistaken, there is a chapter in the By-Laws which entitles any member of a component medical society to be represented as a delegate in this House of Delegates.

The amendment offered will lie over until tomorrow.

Is there any further business?

M. E. COMBS: I wish to offer an amendment to Article IV, Section 3, of the Constitution.

After reading the amendment the President ruled it out of order.

On motion, the House of Delegates then adjourned until 8 a. m. Thursday, October 19.

Thursday, October 19—Fifth Meeting Of the House of Delegates.

The House of Delegates met at 8:20 a. m. and was called to order by President Frank.

The Secretary called the roll and announced a quorum present.

The roll call showed that 50 delegates responded.

THE SECRETARY: I would like to ask unanimous consent (which was granted) to consider any other business at this time.

The Secretary then offered the following resolution of thanks:

RESOLVED: That the thanks of the Association be extended to the McCracken County Medical Society, and especially to the ladies of the society, to the country club, to the citizens of Paducah, to the Baptist Church and the Elks Club for their openheartedness and hospitality and cordial welcome which have made this annual meeting one of the memorable milestones in its history. Our thanks are especially due to the daily newspapers for their reports of our proceedings. Furthermore, our thanks are due to the doctors particularly for our pleasant stay in their midst which will strengthen the determination of the profession and the people of this county to build up such an all time health organization as will protect the health and lives of the citizens as they can only be protected by the proper development of that department. The state pledges its support to the members in McCracken County Medical Society and its citizens.

The resolution was seconded and unanimously carried by a rising vote.

THE PRESIDENT: The first order of business of this fifth meeting of the House of Delegates is the election of officers. The chair will now entertain nominations for President of the Kentucky State Medical Association for the ensuing year.

T. A. FRAZER: We have certainly had a good time in Paducah. Paducah is made up of real Kentuckians, of people that Kentucky is proud of. The people are proud of themselves. Paducah has real physicians. All west Kentucky can be proud of what it has done ot this meeting. McCracken County is one of the strongest counties in west Kentucky. Her physicians and her surgeons are the equal of any in the State of Kentucky, and they have proved this by their hospitality and good will.

I want to place before the House of Delegates the name of a gentleman from McCracken County for the presidency. When I say gentleman, I mean all the word implies; I mean a man in every respect; a man who has stood by the medical profession through many long years; a man who has ever been ready to do his duty regardless of consequences to himself; a man that this Association will honor itself by honoring him. I desire to place before you the name of Dr. Frank Boyd of McCracken County for the presidency of this Association.

E. W. JACKSON: I wish to second the nomination of Dr. Frank Boyd.

It was moved that nominations be closed, and that the Secretary be instructed to cast the ballot of the House of Delegates for Dr. Boyd.

Seconded and carried.

The Secretary cast the ballot as instructed and Dr. Boyd was declared duly elected President of the Kentucky State Medical Association.

The following officers were nominated and declared elected:

First Vice President, W. Barnett Owen, Louisville; Second Vice President, W. R. Moss, Clinton; Third Vice-President, Charles R. Tanner, Henderson, Delegate to the American Medical Association, Lewis S. McMurtry, Louisville, re-elected; Councilor for the Seventh District, V. G. Kinnaird, Lancaster.

Crab Orchard wae selected as the next place of meeting.

Orator in surgery, E. Murphy Howard, Harlan; Orator in Medicine, W. L. Tyler, Curdsville.

The next order of business being the appointment of standing committes, the President said that he would make these appointments and transmit them to the Secretary who would in turn notify the members of these committes.

THE SECRETARY: There is an amendment to Chapter IV, Section 2, of the By-Laws, of which notice was published in The Journal, which was offered on the last day last year by Virgil E. Simpson, reading as follows: That the last twenty-four words of the last paragraph of Section 2, Chapter IV, be strieken out and in lieu therof the following be written: (see amendment introduced at the fourth meeting of the House of Delegates.)

THE PRESIDENT: What is your wish in this matter?

PAUL KEITH: I move that this amendment be adopted.

Seconded.

THE SECRETARY: If for any reason a delegates leaves the session of the House of Delegates after having registered, the alternate will take his place for that particular session from which he is absent.

There is one practical matter I would like to call the attention of the House of Delegates to. It was formerly provided that when a delegate was seated, he was seated through the session, or when an alternate took the place of the delegate, he was seated through the session.

A large number of the county societies elect their delegates and alternates a considerable time before the annual meeting of this Association, and as a consequence both delegate and alternate may be absent. For that reason an amendment was adopted that the president of a component county medical society could appoint an alternate for the annual meeting. Regardless of the merit of the system, this is much better because it will mean a fuller attendance of members of the House of Delegates, and the more delegates we have to represent the profession, the better off we are.

This amendment could be amended by using five words in that amendment.

J. W. KINCAID: That was my object, and I would like to ask the Secretary to read the entire section in connection with the amendment. This amendment as offered is valuable to the larger societies of the state, and I believe ought to pass, but I do not believe that all of the twenty-four words in the present section should be eliminated, for the reason that a great many societies having six or eight members are electing delegates some time before the meeting, and forgetting all about it when it comes time to go. If the regularly elected delegate cannot go to the state meeting, it is impossible to call a meeting of the county society in order to elect a delegate. Somebody in the county wants to go the the state meeting, and the county will be unpresented unless he should be elected a delegate by the president of the county society. I do not see any reason why both features should not be incorporated in the section. As read, the amendment will suit Jefferson County and other large counties, such as Fayette and a number of others, but I submit, if you eliminate the twenty-four words and take it out of the power of the president of the county medical society to appoint an alternate, so that the society will be represented, probably during the meeting ten or fifteen counties will have no representation, yet they will have men present.

It should be amended to read that an alternate elected by the county medical society or appointed by the president of the county medical society, shall have the rights and privileges of a regularly elected delegate.

PAUL KEITH: If I understand this proposition, after talking with Dr. Simpson, that is the very thing we are trying to get rid of, that is, having the president of the county society stand at the door and appoint a delegate to serve here, we want to raise the standards of the delegates and the alternates, to make it more important in the eyes of the county society that they elect a delegate and alternate who will go to the state meeting.

J. W. KINCAID: How can you tell who is going to go before the meeting comes around?

J. P. KEITH: That is a proposition we are fighting, and I may say it was overlooked in drawing this amendment. I have contended with those who drew this amendment that the By-Laws and Constitution should provide that they should be elected each year. That is not being done. It has not been done in Jefferson County Medical Society for a number of years.

A DELEGATE: Our alternate we selected at a meeting just before coming to the meeting of this Association. I do not think that this House of Delegates should say to the county society as to when they should elect their delegates and alternates. You cannot tell beforehand who is going to come. If you select them a week before, you can tell. But this other proposition of giving the president of the county society power to appoint those who are going to the meeting is what the amendment was prepared for, so that the president could not pack the House on the last day for any legislation or any office that should come up, and if you have that in mind the men who drew this amendment would pull the whole thing off and let it go.

J. T. REDDICK: I am not a delegate and perhaps I have no right to speak.

THE SECRETARY: I move that unanimously consent be granted to Dr. Reddick to speak on this subject.

Seconded and carried.

J. T. REDDICK: In case we have two delegates for McCracken County, when the alternate is appointed, would it be necessary for the appointment to show in whose place he acts? That ought to be settled, or would he act for either one of the delegates?

THE PRESIDENT: I assume he would.

SILAS GRIFFITH: We have had such a condition arise in our county. We are a fairly representative county of the third class. We are entitled to two delegates. We had one delegate appointed who was stricken with diphtheria, and the alternate could not come. From our county there were six or eight men in attendance at the state meeting. We did not pass a resolution, and this condition did not arise until probably the day of the meeting. Are we going to pass a resolution which would cut out representation in a county like ours? Had it not been that the president could appoint a delegate, we could not have had representation in this meeting. There is some reason for this agitation. It looks to me as if we should have a provision by which the smaller counties as well as the larger ones can have representation.

THE SECRETARY: The older members will recall that in the early days it was provided that if a delegate could not attend, an alternate should be definitely elected. At one of the largest sessions in Louisville there were only 27 members present entitled to vote. At that meeting we resolved and by unanimously consent permitted the seating of the appointees. It would be unfortunate if that feature were abolished. My understanding of this amendment is that it was intended to cover the point that if a delegate was present and left the meeting, he should be represented by seating the appointed alternate.

J. W. KINCAID: This condition arose at Winchester, and at the Winchester meeting I introduced an amendment which is now a part of that section. There were many counties represented but the delegates were not there. I think both points ought to be incorporated so as to cover the ground completely. I protest against cutting the thing out entirely.

THE PRESIDENT: What would you suggest to overcome the condition? If a county should elect a delegate and an alternate and neither delegate nor alternate attends, and the president of the county society was not in attendance at the meeting, how will he receive his appointment?

J. W. KINCAID: That condition can be attended to before he leaves. John Smith and Tom Brown can go to the president of the county society and say we cannot go to the state meeting, and he finds somebody and persuades him to go. He appoints him. That condition does not arise at the door, but arises back in the county society.

JAMES A. ORR: I believe the majority of the county societies of the state and the majority of the members of the State Association will favor such an amendment to the By-Laws, so that the president of a county society can appoint a delegate when neither the delegate or alternate, who were duly elected as delegate or alternate, cannot go. It is not necessary to appoint delegates at the door. The president of a county society does not know who is going to attend the meeting, or who is not until two or three days before the meeting. I think it would be wise to amend the amendment so that the president of a county society may appoint a delegate or alternate to represente that county society in case the regular delegate or alternate cannot go.

THE SECRETARY: In accordance with the suggestion of Dr. Orr, I would move to amend the amendment as follows: When the elected delegate and alternate of a county society are both absent from a session, the president of the county society may in writing appoint an alternate. Seconded.

VERNON R. JONES: Has not the president of a county society power to appoint a delegate? We had a situation in our county like this: we had a delegate and alternate regularly appointed by the county society officers, and fortunately at the last moment, the evening before the meeting of this Association, the officers were informed that the delegate and alternate were not going to the meeting. I went to our president, told him I was going to the meeting, and he appointed me as delegate. I think the county societies should elect their delegates at any time they see fit. In our county we have not had a meeting since some time in May. It has been hard to get the members to come to a meeting to elect a delegate two days before the meeting of the state association. I think it would be best to elect a delegate and alternate at any meeting they wish, and if neither delegate nor alternate is going to attend, then the president of the county society should appoint a delegate at the last minute.

W. W. ANDERSON: It is certainly not the object of the Kentucky State Medical Association or its House of Delegates to take away from the local or county society the right to be represented. The county society has a right to say whom it shall select for the purpose and by whatever method it may choose. Fortunately the Campbell-Kenton Society has an ample number of men present to represent it, but by vote of the society in accordance with the state constitution, those who were duly elected, if they could not attend, the chairman of the delegation or some member was empowered to go to the county society and have the society appoint alternates in order that the delegation might be filled. I would therefore suggest that this be the thing that shall rule, that the county society shall be represented by duly elected delegates and alternates, in the absence of whom the county may be represented by such methods as it shall prescribe in the selection of its representatives.

W. B. McCLURE: I should like to ask how the Committee on Credentials would arrive at the eligibility of the delegate? There should be some rule by which this committee can be governed. Heretofore it was by a certificate from the president of the county society that so and so has been duly elected, but if elected by the members attending from that county, will the Committee on Credentials accept that as authentic?

J. H. BLACKBURN: It seems to me, the point raised by the Jefferson County delegation of selection of delegates for a particular and specific purpose, whatever that may be, is to be reached by the words "in writing," as supplied by the amendment to the amendment suggested by Dr. McCormack. That solves the whole thing and prevents any lobbying for appointment of delegates on the outside.

W. W. ANDERSON: Would a telegram be considered in writing?

THE SECRETARY: Yes, the law provides for that. (At this juncture there were cries of question! question!)

The President put the motion of the amendment to the amendment and declared it carried.

The original motion as amended was then put to a vote and adopted.

PAUL KEITH: I want to bring before the House the matter we were considering at a previous meeting, namely, an amendment to Chapter XII, Section 12, of the By-Laws.

THE PRESIDENT: There is no need for bringing it up at all as the matter is still before the House inasmuch as you did not withdraw it last night.

The chair rules that such an amendment is out of order as it opposes another article in the By-Laws. It also violates the entire spirit of the Association which, I take it, is a democratic organization and makes for a separate class. According to our By-Laws, every member of the Association is entitled to any office the Association has to confer. If you do not wish to divide your amendments, the chair will rule the entire thing out of order as it is in conflict with other articles of the By-Laws. The chair will be glad to have some one to appeal from his decision.

PAUL KEITH: I feel the President is right in his ruling; that those who drew this amendment had not studied the Constitution and By-Laws and to put the amendment in such form that the chair could rule otherwise. The decision of the President is fair and probably he could do nothing else.

C. Z. AUD: I would like to ask Dr. Keith if, before he sat down last night, he did not withdraw his motion?

J. P. KEITH: I did not withdraw it.

THE PRESIDENT: The chair assumes that the House gives him its endorsement and thanks the House.

At this time,the President-elect, Dr. Frank Boyd, was escorted to the platform amid great applause.

President Frank, in introducing Dr. Boyd, said: Ladies and Gentlemen: I have the great honor of presenting to you your President-Elect, Dr. Frank Boyd of this city. (Applause).

Frank Boyd, in accepting the presidency, said:

Mr. President and Members of the House of Delegates: I wish to thank you with all my heart for the honor which you have conferred upon me. I want each and every one of you to know I appreciate this honor as much as any ane could possibly do. I realize the responsibilities of the office. I realize what it means to be President of this Association following in the footsteps of the illustrious gentlemen who have preceded me.

I wish to pledge each and every one of you that I shall give my earnest efforts for the upbuilding and betterment of the profession and that I shall at all times and under all circumstances do everything within my power for the advancement of the medical profession of the State of Kentucky, and at no time will I neglect that duty.

I wish to thank each and every one of you again for the distinguished honor you have conferred upon me. (Applause).

As there was no further business to come before the meeting, on motion, which was duly seconded and carried, the House of Delegates then adjourned to meet at Crab Orchard in 1923.

The following accounts were approved by the Council and upon motion, were ordered paid.

October 18. Voucher Check No. 17		$ 55.00
T. F. BEOMON, Paducah.		
To 4 days service at Paducah Meeting. Approvedby Council and ordered paid by House of Delegates.		
October 30. Voucher Check 18		$207.61
DR. A. T. MCCORMACK, Louisville.		
To October salary, Secretary	$150.00	
To R. R. expense to Paducah	23.76	
To Expense at Meeting	33.85	
Approved by Council and ordered paid by House of Delegates.		
October 30. Voucher Check No. 19		$157.53
DR. L. H. SOUTH, Louisville.		
To October salary, Business Manager	$100.00	
To expense to Lawrenceburg	4.50	
To expense 2 trips to Bowling Green	24.50	
To expense at Paducah Meeting	28.53	
Approved by Council and ordered paid by House of Delegates.		
October 30. Voucher Check No. 20		$ 75.00
ELVA GRANT, Louisville.		
To October salary, Bookkeeper.		
Approved by Council and ordered paid by House of Delegates.		
October 30. Voucher Check No. 21		$150.00
STATE BOARD OF HEALTH, Louisville.		
To legal assistance, enforcement of Medical Practice Act.	$200.00	
Less Credit	50.00	
Net	$150.00	
Approved by Council and ordered paid by House of Delegates.		
Octobcd 30. Voucher Check No. 22		$ 31.57
BUSH-KREBS, Louisville.		
To 9 cuts		
Approved by Council and ordered paid by House of Delegates.		
October 30. Voucher Check No. 23		$ 48.75
THE FRANKLIN PRINTING CO., Louisville.		
To 500 copies programs, Paducah Meeting.		
Approved by Council and ordered paid by House of Delegates.		
October 30. Voucher Check No. 24		$ 25.00
WM. J. RUEFF, Louisville.		
To 1 cotton banner, ropes and clips.		
Approved by Council and ordered paid by House of Delegates.		
October 30. Voucher Check No. 25		$ 17.54
TINSLEY-CLINGMAN CO., Louisville.		
To 2 half-tones and 2 duplicates.		
Approved by Council and ordered paid by House of Delegates.		
October 30. Voucher Check No. 26		$551.20
THE TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To Oct. issue, 112 P. 2,500	$385.00	
To 20 per cent added	77.00	
To difference, cost of paper	119.50	
To envelopes	13.50	
To 22 changes	4.40	
To difference setting tabular work, 6 prints	2.20	
To printing envelopes	49.60	
Total	$651.20	
Less 400 errors at 25c each	100.00	
Net	$551.20	
Approved by Council and ordered paid by House of Delegates.		
October 30. Voucher Check No. 27		$ 43.24
THE PENDENNIS CLUB, Louisville.		
To 1|2 for dinners for Kentucky State Medical Association Officers and Council.		
Approved by Council and ordered paid by House of Delegates.		

October 30. Voucher Check No. 28 .... $290.00
AMERICAN MEDICAL ASSOCIATION, Chicago.
To 3,500 colored portraits of Dr. J. N. McCormack.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 29 .... $107.69
THE PALMER HOTEL, Paducah.
To Hotel service as follows:
Dr. A. T. McCormack, 4 3|4 ds. & inc $29.23
Dr. Engelbach 1 1|4 ds. & inc 4.75
Dr. Curry, 2 1|2 ds. & inc 9.75
Dr. South, 4 1|2 ds. & inc 27.76
Miss Sullivan, 4 1|2 ds. & inc 17.50
Miss Atkins, 4 1|2 ds. and baggage 18.70
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 30 .... $ 43.50
DR. J. T. REDDICK, Paducah.
To reimbursement for Association expense at Paducah Meeting.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 31 .... $ 12.50
AMERICAN SURETY CO., of New York.
To Bond, Wm. B. McClure, Treas. No. 0455905, From10|15|22 to 10|15|23.
Approved by Council and ordered paid by House of Delegates.

Ocotber 30. Voucher Check No. 32 .... $ 5.00
RHODES-BURFORD CO., Paducah.
To 24' Exhibitors tables.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 33 .... $ 43.22
DR. W. B. MCCLURE, TREAS., Lexington.
To expense as Treasurer.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 34 .... $ 5.50
DR. R. C. MCCHORD, Lebanon.
To expense as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 35 .... $ 23.50
DR. W. W. RICHMOND, Clinton.
To expense as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 36 .... $ 45.69
To expense as Councilor.
DR. C. Z. AUD, Cecilia.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 37 .... $ 44.39
DR. J. E. WELLS, Cynthiana.
To expense as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 38 .... $ 23.81
DR. J. W. KINCAID, Catlettsburg.
To expense as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 39 .... $ 25.52
DR. D. M. GRIFFITH, Owensboro.
To expense as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 40 .... $ 21.88
DR. J. H. BLACKBURN, Bowling Green.
To expense as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 41 .... $ 39.54
DR. J. S. LOCK, Barbourville.
To expense as Councilor.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 42 .... $154.84
LUDLOW PETTY, P. M., Louisville.
To 1-M No. 9-2c stamped envelopes .... $ 23.32
To 6-M No. 5-2c stamped envelopes at $21.92 M $131.52
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 43 .... $ 65.06
MAYME SULLIVAN, Louisville.
To expense at State Meeting $40.06
To Honorarium 25.00
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 44 .... $ 51.01
MARY ATKINS, Louisville.
To expense at State Meeting $26.01
To Honorarium 25.00
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 45 .... $ 23.76
DR. D. P. CURRY, Louisville.
To expense at State Meeting.
Approved by Council and ordered paid by House of Delegates.

October 30. Voucher Check No. 46 .... $ 69.50
MRS. E. B. KRIEGER, Louisville.
To securing the following ads for Journal:

October 30. Voucher Check No. 47 .... $100.00
FIRST BAPTIST CHURCH, Paducah.
To use of church during State Meeting.
Approved by Council and ordered paid by House of Delegates.

Arthur T. McCormack, M. D., Secretary.

ORIGINAL ARTICLES

THE COUNTY AND COMMUNITY DIAGNOSTIC LABORATORY.*

By Vernon R. Jones, Shelbyville.

We are in the midst of a great reform in medicine. And now are living at the greatest moment of its history, and this great reform of medical progress has brought many changes to the life of the modern physician.

So much new knowledge, so many new methods of exploration to be employed in the detection of processes of diseases at stages so early that in the past their very existence might not have been expected.

In our day for the first time the full domain of this so comprehensive field of learning has been laid open to scientific research.

Doctrines that belong to the oldest tradition of mankind are put to the test, not only of experience but of investigation.

For experience proofs are demanded, for research accurate methods.

This great reform of which we have all been so conscious of for more than a century, has gathered impulse and momentum with the years; and exact scientific methods of research have found their way into all branches of medicine and surgery.

From the days of Virchow, exact scientific methods have brought us a considerable volume of knowledge, that has given us so much power for good.

It has been the scientific experimental method that has brought us so much of the information that we now possess concerning infectious agents and the manner of their entry or transmission into the human body. Knowledge which cleared the way for measures of public prophylaxis that have taken away much of the terror of some of the greatest plagues of mankind.

It has given us information as to the action of many of these infectious agents, and the reactions to which they give rise, in the human and animal organisms, information which has led through the discovery of specific agglutinins and precipitins and of the Bordet phenomena of complement deviation, to the establishment of diagnostic procedures of the greater volume.

It has given us some instances specific curatve antitoxin, toxin-antitoxin as in diphtheria, and tetanus, and in other antibodies of material curative value, as in dysentery, cerebrospinal-meningitis and pneumonia: or of more or less preventive efficacy as in typhoid-fever, cholera, and plague.

The recognition of the simple truth that medical knowledge can be gained only through the study of disease, that the sick bed is one of the most vital laboratories for medical research, that treatment is of the best only where the patient is most carefully and efficiently observed, and has brought to the wards of the hospitals the investigator and general practitioner into closer communion-specialization, emulation in the study of diseases.

Its causes, its prevention and its treatment, have increased the interdependence of medical men and have brought the physician closer to his fellow the world over.

The multitude of laboratories that welcome the investigators, the associations and congresses, general and special, local, national, international, the common interest of the world in medical research, not only brings the physician into closer contact with other members of his profession, but are placing the doctor, his problems, his ideals, his accomplishments, more and more prominently before the public eye.

The physician has become less isolated. But, with all the improved modern diagnostic and therapeutic methods, the quality and training which go to make up the wise practitioner, remain essentially the same.

The greatest work of the physician is still accomplished through his personal influence on his patient, an influence that depends upon his common sense, his human experience and sympathy, his temperament and his character, and careful bed side observation and experience form still the main basis of efficiency in practice. In his daily work, however, the doctor of medicine must appeal repeatedly to histological, bacteriological, physical and chemical assistance. To comprehend and understandingly to employ these procedures the physician must have a knowledge of chemistry, of physics, of mathematics, considerably beyond that which was demanded or possible in days not long passed.

The new medicine has to bring its physiology down from the sky and to recast its empirical habits and maxims upon the surer basis of physics and chemistry. As these forces get a hold on pathological phenomena the physician will see them more clearly and intimately, and his routine methods will be purified and economized.

At the present moment medicine tends to be preoccupied with the discovery of methods which will enable us to understand, in the living, the physiological action of organs, to recognize functional troubles, and to determine the nature and the significance of morbid reactions.

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*Delivered before the Kentucky State Medical Association, Paducah, October 16, 17, 18, 19, 1922.

Until recently our means of clinical investigations were few and simple, the physician noted the patient's expression, made him put out his tongue, counted his pulse, took his temperature, asked him a few questions, practiced auscultation and percussion, palpated his body, sometimes making a rapid analysis of the urine, for sugar and albumen, and believed he had made a complete examination.

These summary investigations used now in routine practice often sufficed for a diagnosis and furnish the indications for rational treatment.

When cases are complex, difficulties arise which cannot be solved except by new methods. Formerly these were not available and as a result certain physicians acquired a marvelous talent for solving delicate problems, they possessed a clinical sense which allowed them to divine the truth. Their method was essentially intuitive. Diagnosis was a veritable art. Today it tends to become a science.

There is a constant endeavor to turn to clinical use, all the discoveries of the different branches of scientific research, diagnosis gains in precision, the examination of the patient becomes longer and longer, more and more complex according to the case. It becomes necessary to use methods of examinations borrowed from chemistry, physics, bacteriology and physiology. It is necessary to collect the urine, the feces to obtain blood and cerebro-spinal fluid, throat culture, etc., and these must be submitted to chemical and biological analysis.

All these investigations necessitate the assistance of a diagnostic laboratory of modern medical research. In many cases the physician is no longer able to make a complete examination without their aid. He must be furnished with series of findings which he must compare, co-ordinate and interpret and from which he shall draw his conclusion.

The establishment of the first public health laboratory in New York City in 1892, was due to the entrance of cholera into the port of New York, but from the first it was principally occupied in diagnosis of diphtheria.

Two years later the examination of sputum for the diagnosis of pulmonary tuberculosis was begun and in the autumn of 1894, when diphtheria anti-toxin was discovered and its value established, the New York City laboratory begun to produce and distribute the anti-toxin.

The free distribution of this product which was the first produced in the United States, began in January, 1895. Since then the scope of the laboratory's activities has increased enormously in regard to the variety of diagnostic tests, which it is prepared to make and the kinds and amounts of the biologic preparations which are produced and distributed. Diphtheria, pneumonia, meningitis and other frequently occuring communicable diseases are diagnosed, and antitoxins or anti-serums are made for a number of them. The satisfactory work done by the scientific staff of this laboratory under the direction of the medical officer, was appreciated both in America and abroad, and a laboratory was seen to be a necessity for every community that could afford to equip and support one. These laboratories were soon found to play a very important part in the diagnosing and the central of communicable diseases. The first state laboratory was established in Rhode Island, September 1st, 1894, and now nearly all the states have public health laboratories which vary in scope and the amount of work done from the performance of a few hundred simple examinations to a service which includes every sort of public health activity and serves the people of a whole state, and not the least of these is the Kentucky State Laboratories.

The development of these public health laboratories has not lessened the number of private university, hospital and research laboratories, but these are located principally in the large metropolitan cities and have been developed into great institutions, consisting of the most modern equipment for diagnostic purposes.. Every department is most complete and comprises every scientific instrument in use.

I will not worry you with any further descriptoin of these wonderful diagnostic institutions.

The standard of efficiency among general practitioners in the small towns and rural districts, is greater than among their counterpart in the larger cities. This is easily explained.

A recent survey by the New York State Health department in some twenty strictly rural counties revealed that 97% of the physicians in active practice have been there for twenty-five years or more, and only three per cent five years or less. The recent graduates in medicine are not to any appreciable extent settling in the rural communities. It is also true in the last few years that many physicians have left the rural districts for the city, creating thereby a surplus in these areas to a certain extent and a shortage in the rural districts.

The old time country doctor, famous in song and story, who came to the relief of human suffering through the heat of summer, and whose foot falls were muffled by the snows 8 miles is an outgrown type.

This excessive urbanization can not be laid to any one cause. The World War has been one factor, twenty thousand doctors volunteered for the Service, were away from home for many months, obtained new points of contact, had their horizon widened, and like all participants in the great struggle were subject to the peculiar psychology of war, which finds its expression in restlessness, and desire for change. Many of the doctors did not go back to the old environments. Then there is the effect of what may be appreciation of the real worth of the rural termed "Small Town Talk." The lack of doctor on the part of the people in general and the profession in particular. The general practitioner in the country probably averages as well as his city brother. It seems difficult to correct the impression that Dr. A in a village of five hundred inhabitants can not be as good a man as Doctor B in a twon of fifty thousand, then there is the inadequate compensation of the rural physician to be considered. The average income today of the country practitioners is less than one thousand dollars per annum. This is true not only in a few sections of the United States but exists in every state and it has become an alarming condition in Kentucky. At the recent session of our General Assembly there was a bill introduced to bring about a relief of this condition. The preamble of this bill stated that whereas, due to the change, economic, and social conditions, nation wide in scope, brought about during the accentuated since the World War, there has seemed to develop a growing tendency of the country people, who constitute the necessary foundation of an agricultural State like Kentucky ,to move into the cities and towns.

Whereas, investigations extending over several years showing that over one-third of the families in Kentucky never have and can not now pay any thing for medical services, Whereas, owing to the rapid growth of this branch of scientific knowledge, the time and expense of getting an education in this profession has more than trebled in the last twenty-five years, and the cost of the instruments, books, journals and other things absolutely essential in equipping a doctor to do modern practice, with safety to the health and lives of the people, has quadrupled. Therefore the younger graduates do not locate in the rural areas and the rural physicians are moving to the cities and towns.

Therefore in order to meet this real emergency of the people in the country districts it was proposed to shorten and make more practical and effective the course of study required for the medical student.

Also to allow an undergraduate with undergraduate credentials fulfilling the requirement as to having attended and taken three courses, and lectures of not less than nine months each, and then having satisfactorily passed the required examination, he would then have been granted a limited certificate to practice for a term of five years, and such certificate to be renewable at five years intervals and etc. He is after the first of these periods then allowed to complete the balance of the college course and graduate. This condition to exist until the time arrived, when the state could take over or divide the expense of educating the future practitioners of Kentucky, as is now being done in many other States and countries.

The intentions and purposes of this bill were alright, but it would have failed to have solved the problem, there being nothing to encourage the doctor to locate in the country. It would have aroused the protests from the profession at large.

There has been another solution offered, and that has been the group practice in small towns. Nearly all the recent articles in medical literature deals with this subject, and their writers seem to think it will solve the medical problem in the future. To begin with this plan would not be feasible, because in group practice the organization should be favorably located where they could see a large number of cases daily. Looking at this system commercially if group study is to be considered from an economic view point, it follows as a matter of course that the individual fee to each specialist must be considerably below what he has been in the habit of receiving, or else group study loses its economic value. Reduced to its final dimensions to work most successfully it must mean large business but small profits. It is questionable whether any good man can give his full interest and enthusiasm to a case for a minimum fee.

In as much as people have always resented being treated as a commodity, will they take kindly to any system which gives them limited attention, no matter how expert that attention may be?

Will the physician lose his interest when his patient becomes institutional instead of individual when the patient is reduced to case number instead of names?

Then again corporate medicine which is an extension of the group system, has found its way to commercialize a dignified profession, when it is linked with an advertiser's art. There have been corporations for the purpose of conducting a general medical practice and surgery, with capital stock of from fifty to a hundred thousand dollars. There are numerous advertisements in medical and lay journals, such as "Oral surgeon wants to join group of specialists." "Wanted men specializing in anesthesia, roentgenology, etc, for a clinic which is being formed."

The physician must not lose his personal contact with his patient, and in order that this be not done, we must fill the gap between the general practitioner in the smaller cities and towns on the one hand and the larger metropolitan centers and clinics on the other.

The great need of the rural physician and no one realizes it better than he does, is improved diagnostic facilities, with a diagnosis made. He is fully competent to decide whether or not it is feasible for him to undertake the treatment of his patient, or to refer him to some one else. The secret of successful therapy lies in an early diagnosis. These facilities are usually lacking in the rural towns and villages. The small hospitals are not usually equipped for this work, they are proud of their method of caring for their patients, but they have not a well appointed laboratory for diagnostic work. The large metropolitan clinics and laboratories that provide these facilities are usually too far away to be of much service except in special and obscure cases. These institutions of the better class are to be commended for they like the Mayo clinic or Johns Hopkins have a well earned place in the medical profession for they have endeavored to lead the way in medical thought, and are not meant with their elaborate methods to meet the physician's daily needs, they are schools of study and experiments, the results of which are gladly given to the profession. There are a few things besides the distance, which has been a disadvantage to the patient and the physician, sometimes the rural physician has taken the patient to a specialist in the nearest large city. The specialist usually sends the patient to one of the large hospitals for observation. This has not always been entirely satisfactory, in most instances to either the patient or the attending physician. The former because of the expense and the necessity of going into a strange environment. The latter because too often he loses all contact with the patient and still retains his responsibility to the patient and the family. The patient is often referred to various specialists for examination, he becomes worried and confused. On one of our trips from being referred from specialists to specialists the patient said to me "Dr.—— must have a great many friends in this building." The patient often complains because he does not like the noises of the large cities. Too frequently he is compelled to pay more than he can afford for hospital accommodations. The general practitioner is in the best position to know the idiosyncrasy of his patient." "One man's meat is another man's poison" is sometimes found to be true. We have seen how good wholesome food may actually poison some people, likewise certain medicines.

He can save the patient from shock and from the unnecessary annoyances of diagnostic facts that under his guidance can be told in a manner that would avoid embarrassing the patient.

The general practitioner, the family doctor, sometime loses the management of the case. He feels that he is entirely competent to give his patient good care, to be sure he frequently asks the advice and assistance of a specialist or colleague in a difficult and unusual case. This problem can be solved in part by the establishment in every county in the state a county diagnostic laboratory and in every community where it would be needed, this could be successfully carried out by cooperating with a central State laboratory.

The State Laboratory works largely with the object of possible disease prevention and epidemic control. The clinic laboratory, largely with the object of aiding the treatment of the specific case. The research laboratory with the object of diagnosing and finding out the cause of diseases all serving a common purpose. Research work and research laboratory, which is equally valuable to public health administrations and general practice, may be organized with either class of laboratories. I will now class them all into one laboratory, and then will designate them as diagnostic laboratories. The Central State Laboratory is so much larger and so much more completely equipped, it is obviously better qualified not only to perform a large amount of daily routine but also to make complicated and unusual examinations and it offers exceptional opportunities for the testing of difficult technical procedures. It is especially fitted to prepare the standard serums, vaccines, anti-toxins, and other biologic products.

There are many research problems requiring large numbers of specimen for comparison that are best carried out at the State laboratory.

Many problems are best carried out in a local diagnostic laboratory with fresh material and direct contact with the patient.

The medicine of the future has one great problem to solve, how to establish rapport between the research conducted by the physiologist in the laboratory, the research conducted by the physician in the ward and the research by the general pratitioner from his first to his last visit, and many such problems can be studied here and nowhere else. A local diagnostic laboratory properly equipped can fill a much needed place in every county and local community. These laboratories would be able to do control work on certain diseases on which analysis of suspected exudates is impossible when they are sent away, and the local laboratory could do good work on a number of items in which the analysis would be unreliable if the specimen were sent to a distant laboratory.

In the large cities there is often enough analytical work for a private laboratory to be equipped and maintained and time given to clinical pathology. In the smaller communities this is not practicable, therefore the county and community diagnostic laboratory should be a branch of the state laboratory. These laboratories should be standardized, a system of inspection and of methods for testing the work that is done in the different laboratories is necessary. They should be inspected personally and by sending to the local laboratories sets of specimens to be examined and reported on, while at the same time having examinations made in the central laboratory. It would check not only the work of the local laboratories but also that of the large central laboratory; as far as is possible there should be competent and responsible bacteriologists and technicians and the workers in the local laboratories should make a practice of visiting the central laboratory at regular intervals. In the small communities where it would not be practicable to establish a diagnostic laboratory a motor truck would be used very successfully as a laboratory and clinic going from one part of the county to another, from precinct to precinct, and could visit all of the schools. The county and community health centers should begin at the schools.

The most important problem confronting organized medicine today is the education of the public as to the importance of effective medical treatment at the right time. The time is at hand when while having in mind that our profession must hold as paramount the best interest of the public. Medical organizations shall lead the way, and all questions of health and medical service through cordial co-operation with civic welfare and social organizations which are naturally thought incidentally interested in various phases of the problem.

The educated layman will not long remain in ignorance of the advantages in general and medical science, and when he finds that his family physician because of the lack of modern diagnostic facilities is puzzled and is having some difficulty in solving his medical problems. The layman will then of his own accord go and consult some one who has the advantages of these modern equipments.

The public is gradually awakening to this fact. They are learning of the necessity of radiogram in fracture cases, and of the examination of sputum in chronic coughs, of the standard contents in gastric disorders, of the examination of the urine in vesical, or renal disturbances. Therefore in order to meet the new modern conditions it is to the interest of the physicians and the public of every county and community not already supplied with proper laboratory facilities to encourage their establishment.

I reside in a country village six miles from the county seat. We are building in this community a new rural consolidated public and high school, with transportation furnished. When the plans of this building were being considered, I suggested to our county superintendent of schools, Mrs. M. L. Hall, what a great thing it would be if a room could be placed in this building where the children could have first aid treatment, and be examined, with the assistance of a small diagnostic laboratory where we could train some of the high school students to do some of the work of a preliminary nature. She being of a progressive mind enthusiastically consented to this suggestion, and a room is now being built for this purpose, and we are going to ask Dr. McCormack to give some help in this matter, and during school vacation, see if he will consent to train a few of these students at the state laboratory for this purpose, and send out workers to help us, and by getting these students interested, we may be able to help solve some of the medical problems of the rural communities, as well as relieving the future nursing problems of the state. Where space is not available for this purpose, it could consist of about three small rooms for the doctors use, a matron's room, a nurse's room, a bath room, and rooms for four to six patients. In the basement rooms could be provided for a heating plant, laundry, kitchen, and doctor's work shop. This building though not a hospital but simply a small diagnostic center, affording a place for more serious cases and those needing more time and study than the average call permits. This building could be built for about five thousand dollars and could be changed to suit the needs of the community. This could be supported by a community tax, but by this method only a few communities would ever have one, there are many other ways of financing, too numerous to mention, that probably would not be successful. The only practical way would be for the legislature to enact a law to this effect, thereby creating the establishment of these diagnostic laboratories in every county, and when that is done you will then have solved the problem of the rural communities, as far as the scarcity of physicians are concerned.

The call for country doctors would be a challenge to the medical profession. It is hoped that in the near future this challenge will be made, and when it comes it is hoped that the profession of medicine will not be found wanting. With new roads being built, schools being consolidated, the success of the co-operative marketing association, health standards raised, then the rural districts will come into their own. The modern country doctor will be on the scene in personal contact with his patients, and commercialism will be driven out.

ARTERIO-SCLEROSIS AND HYPERTENSION*

J. W. Morris, Louisville.

With the increased complexity and anxiety of modern life, comes increased wear and tear on the human organism, and the result of this additional strain is inevitable. "A man is as old as his arteries," is an old proverb. Its application to mankind is today probably more striking than it was when the saying was first uttered. While it is true that the average life of mankind has been materially lengthened, the increase in age amounting to fourteen years, in the last one hundred years, at the same time clinicians and pathologists are agreed that the arterial degeneration known as arterio sclerosis, is present to an alarming extent, in persons over forty years of age. Figures in all vital statistics show that all affections of the circulatory and renal systems are greatly on the increase. Arterial diseases of various kinds, atheroma, aneurism, etc., caused 15,685 deaths in 1919 or 23 per every 100,000 people. The great group of cases of cardiac incompetency, aneurism, cerebral apoplexy, chronic nephritis, emphysema, appear as terminal events, in which arterio sclerosis has probably played an important part. Arterio sclerosis is not a disease per se but is best described as a degeneration of the coats of the arteries, resulting in several distinct types. These types blend one into the other, and in the same patient, all types may be found. Thus the sclerosis of the arteries is a result of a variety of causes, none of which is definitely known in the sense of a bacterial disease. We know however, that one type of arterio sclerosis has a special pathology and etiology. I refer to the syphilitic type. While it is true that we do not recognize arterio sclerosis as a true disease, we may, for convenience define it as a chronic condition of the arteries and arterioles characterized anatomically by increase or decrease in the thickness of the wall of the blood vessels, the initial lesion being a weakening of the middle layer, caused by various toxic or mechanical agencies. The vascular system is often likened to a central pump, from which emanates a closed system of tubes, beginning with one large distributing pipe which gives rise to a series of tubes, which number constantly increases, at the same time their calibre is decreasing. From the smallest of these tubes, larger and larger vessels collect the flowing blood until back at the pump, two large trunks of approximately the same area and capacity as their large distributing pump, empty the blood back into the heart, thus completing the circuit.

Pathology—The whole subject of pathology of arterio sclerosis, has been enriched by the study of experimental lesions produced by various drugs and micro organisms, upon the aortas of rabbits and other animals. Simple atheroma must not be confused with the lesions of arterio sclerosis, for the lesions of arterio sclerosis are of an entirely different character. It has been customary to differentiate three types, the nodular, diffuse and senile. It must be understood, however, that this does not mean a classification of distinct types, as a rule in advanced cases of arterio sclerosis lesions representing all types and grades are found. The nodular type, however, may occur in the aorta alone, the branches remaining free. This is most often found in the syphilitic from where the lesion is confined to the ascending portion of the aorta. The aorta and branches are only distributing tubes, and then after all, it is the arteries and smaller branches which receive the greater damage from this arterial hardening. A point to be emphasized is that the whole arterial system is rarely if ever attacked at the same time and to the same degree of uniformity. That is to say, there may be a marked degree of sclerosis in the aorta and coronary arteries with very little if any, changes in the radials on the contrary, only a few peripheral arteries may be the seat of the disease. A case in point which was seen at autopsy in which the aorta in its entirety and all the large peripheral vessels were absolutely normal, but in the brain the arteries were tortutous, hard and studed with miliary aneurisms. It is not possible to judge accurately the state of the whole arterial system by the stage of the lesion of any one part of the arterial system. But on the whole, one may say that an undue hardening of the radial artery indicates that analogons changes in the mysentery organs and in the aorta exist. As the body ages, certain changes take place in the arteries leading to thickening and elasticity of these walls. This is a normal change and in estimating the palpable thickening of an artery, the age of the individual should always be considered. The essential of arterio sclerosis of the aorta and large arteries is the degeneration of the middle coat. This is brought about by one or more of a variety of poisons flowing in the blood. In syphilis, for example, the initial lesion has been shown to be a mesoarteritis. Spirochaeta pallidae have been found in the degenerated media and in smaller gummata situated beneath the intima. Within the past several years it has been fonnd that a large per cent of patients suffering with cardio vascular conditions, give the positive Wasserman reaction, and in cases of aortic insufficiency, the reaction is present in nearly every case. This is in marked contrast in diffuse endocarditis where the reaction is rarely present. In diffuse arterio sclerosis accompanied by chronic nephritis, the heart is always hypertrophied. This is a result, not a cause, of the condition. In the true type, there is hypertrophy only of the left ventricle without dilatation of the chamber. There is often thickening and shortening of the aortic valves, leading to insufficiency of the orifice. In senile arterio sclerosis there is a physiologic atrophy of the media to be reckoned with, and when such a degeneration has taken place the normal blood pressure may be sufficient to canse stretching of the arterial weakened media.

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Sclerosis of the Veins

Phlebo sclerosis frequently occurs with arterio sclerosis. It is seen in those cases characterized by high blood pressure, such increase in the veins is due for example, to cirrhosis of the liver which effects a part of the portal circulation, or mitral stenosis which affects a pulmonary vein. In many cases of arterio sclerosis, the pathologic changes, therefore, are not confined to the arteries but are found in the veins and capillaries as well.

Blood pressure is the expression used for a series of phenomena, resulting from the action of the heart, as every heart beat is actual work done by the heart in overcoming resistance to the outflow of blood. This force is approximately measureable in a large artery such as the brachial. It has been determined that the pressure in the brachial artery, is almost equal to the intraventricular pressure in the left ventricle. This measurement is most conveniently made in the brachial artery. There is some difference in the pressure in the femoral and the brachial artery and some use both arteries in making examinations. However, the use of the femoral artery is not practical and is not to be recommended. Blood pressure is a valuable aid in diagnosis and of material help in many cases of prognosis, but is not infallible; neither can it be used alone in the diagnosis of disease. It is only one of many links of a chain in evidence leading to a diagnosis. It has been badly used and much abused. It has been condemned unjustly, when it did not furnish all the evidence, and on the other hand, has been too highly praised by both doctor and patient. A sane course in the use of the blood pressure instrument must be widely disseminated or its real value will be lost and its use discarded. The blood picture consists first of systolic pressure, secondly the diastolic pressure, third the pulse pressure, which is the difference between the systolic and diastolic pressure, and fourth, the pulse rate.

To illustrate what I mean, thus should the blood pressure be expressed in literature of 120-80-40-72. That tells the whole story in a brief accurate form. This is recommended in all reports of cases. *Blood pressure instruments.*—There are several instruments which are in common use, for the recording of blood pressure in man. Historically, the determination of blood pressure for man, began with the attempt of Vierordt in 1885 to measure blood pressure by placing weights on the radical arteries until obliterated. The first useful instrument was devised by Marcey in 1876, but its usefulness was still far from perfection. In 1896 and 1897 further attempts were made to modify and simplify blood pressure instruments by Rivarocci, Hill and Bernard. The Rivarocci instrument was modified by Koch. Some of the most usefnl blood pressure instruments are the Koch's modification of the Rivarocci instrument, the Stanhouse sphygmomanometer, the Erlinger, the Faught, and the Tycos, the Tycos being my choice of all the instruments. The same technic applies to all instruments. The patient sits or lies down comfortably, the arm is bared to the shoulder, the cup is fastened to the upper arm, at least one inch to show between the lower end of the cuff and the bend of the elbow, this rubber is so adjusted that the rubber bag presses directly against the inner side of the arm. The upper part of the cuff should fit more snugly than the lower end. The remainder of the procedure is plain. In taking blood pressure, one should take the average of three or four examinations or readings not taken too near the same time and the mean average then be reckoned.

Hypertension.—All the conflicts during the past several years, over the subject of blood pressure, have revolved around this overworked word hypertension. Hypertension means a high pressure, and yet it carries with it a suggestion of high pressure which is harmful to the individual. As a matter of fact hypertension is a compensatory process and it is often a saving means, in spite of the fact that it carries a possibility of harm in its possessor. Hypertension should be viewed rationally and its proper place in the entire makeup of the patient determined. Hypertension is a relative term. What might be high pressure in a man of sedentary habits at the age of 50, might not be high pressure in a full blooded formerly athletic man of the same age.

Temporary hypertension due to excitement, exercise and so on, must be kept clearly in mind. Hypertension, after all, is a physiological response on the part of the organism in order to maintain the circulation in equilibrium in the face of conditions which tend to produce vasomotor constriction in the large areas, and therefore tend to deprive these organs of blood. It seems certain that there is some substance in the blood which causes this condition, but what it is at present is not certainly known. What makes the hypertension of significance is not the tension itself, but the fact that it is the expression of a process going on in the body which demands exhaustive investigation. In all high pulse pressure cases, there is permanent increase in the character of the arch of the aorta.

I shall say nothing of blood pressure in surgery except to state that careful estimation of the pressure in some surgical cases has great value. I hope some surgeon will discuss this subject from a surgical standpoint.

Obstetrics.—I may state also that constant determination of blood pressure during the latter months of pregnancy is of very great importance. Quite as much so as frequent urinary examinations. The most significant change in these cases is from a low to a high blood pressure; when this is combined with albumen and urea the danger of toxemia is very great and demands prompt attention.

Causes.—The causes of arterio sclerosis are varied and many. No two persons have the same resisting power towards poisons that circulate in the blood. Some go through life with all the infections diseases about them without ever becoming infected, while others fall easy victims to every disease that crossed their pathway, and it is quite the same with respect to arterio sclerosis, which is due also to infection. Beyond doubt heredity plays a large part in the determination of this disease. Especially is this true with reference to syphilis, for we know that the syphilitic parent or grandparent may leave a syphilitic stigma in these succeeding generations in the way of poor arterial tissue which is prone to early degeneration.

Age.—No age is exempt from this disease, but most frequently it is found in persons above middle life.

Sex.—Statistics show that men are far more prone to this disease than are women.

Race.—This disease is far more common in the negro race than in the white. Some of the most beautiful examples are constantly being found in the negro race.

Occupation.—Certain occupations have a causal relationship to this disease. We may mention long continued muscular exercise, especially those requiring much heavy lifting, also long mental strain and worry, the constant working in paint shops, where one is constantly exposed to the paint. The opinion that arterio sclerosis is due in some measure to the end products of protein digestion is now receiving much attention. It has been shown that dogs fed for a long time on putrefied meat developed inflammation and degeneration of the arteries. Many infectious diseases have a causative effect in the production of this disease, among which may be mentioned measles, scarlet fever, diphtheria, cerebro spinal meningitis, and others. Among other factors in the production of this disease should be mentioned, lead, tobacco and, according to some, coffee and tea have a causative effect.

Just what part alcohol plays in the production of this disease, is just now very much discussed by scientific men and the results have not yet been fully made known. That overeating and the eating of certain kinds of food has largely to do with the production of arterio sclerosis there can be no doubt. It is unquestionably true, that perverted metabolism of an overcrowded and imprudently filled stomach and intestines, plays an important part in the production of this condition. It is not often that we see victims of arterio sclerosis among care-free persons who take things lightly, and laugh their way through life instead of taking life too seriously and spend most of their time in worry and grief.

Chronic disease of the kidney, especially the red contracted form, is one of the most common productions of hypertension. Just what causes an increased pressure in these cases is not definitely known, but is probably due to some toxin produced by the diseased kidney and conveyed by the circulation to the coats of the blood vessel. Arterio sclerosis comes to almost every one who lives out his alloted time of life, but as has already been mentioned, many diseases and many habits of life are conducive to this disease. Certain changes normally take place as the individual grows older, and the prophylaxis of arterio sclerosis is the adjustment of our lives to our environments, so that we may get the maximum amount of work done with the minimum amount of wear on the blood vessels. Most people live too fast in this age, burning the candle at both ends at the same time. It is not strange, therefore, that so many men and women grow old prematurely. People habitually eat too much, many drink too much, they throw into the vascular system excessive fluid, combined frequently with toxic products, which cause eventually a condition of high tension. The prophylaxis of arterio sclerosis is moderation of all the duties and pleasures of life. Men who have led active lives when younger should guard against overeating and lack of exercise when they grow older; many factors which favor the development of this disease are already present and a sedentary ordinary life such as being in office all day, attending club in afternoon, perhaps a few drinks and much rich food at the same time at night, will eventually and inevitably lead to arterial hardening, and we might add here that too much brain work without sufficient physical exercise, tend toward the same results.

Treatment.—In general the treatment of arterio sclerosis is prophylactic and systematic. It is essentially a chronic progressive disease and the secret of success in the management of it is not to treat the disease per se, but to treat the patient who has the disease, the keynote being individualization. The habits and mode of life in every detail should be studied in every case, if we hope to obtain the greatest measure of success. Every man is more or less the arbiter of his own fate, granted that he has good tissue arteries to begin with. His own habits and action determine his span of comfortable existence. First and foremost is sufficient exercise. The indulgence in the out of door sports now becoming more favored with the American people than ever before, is conducive to the end for which this paper was written, that is the prevention and modification of arterio sclerosis. One of the best open air sports is golf, which is well patronized at this time; also we might mention tennis, rowing, swimming, and horseback riding. Most of the above mentioned are being indulged in by those in reasonably good health, but are not suited for those suffering from advanced arterio sclerosis.

Diet.—As to that we will only make a few suggestions, as we know food stuffs are composed of one or all three classes, that is proteins, fats and carbohydrates; as example of the first, are beef and the white of egg, of the second, oils, butter, lard, of the third, sugar, beets, corn, potatoes, etc. It has been shown beyond question that proteins in excess are productive of arterio sclerosis, therefore the excessive meat eater, especially the red meat, is most liable to show early signs of this disease. On the other hand those who adhere most strictly to the fats and carbohydrate diet are less liable to take on these forms of arterial degeneration. Some are in favor of a rigid milk diet for those suffering from arterial trouble, some men have lived on milk alone for several years and remained in a reasonably good state of health; buttermilk is beyond question of great value, in the treatment of this disease and should be taken in very large quantities. It has long been taught and justly so that the iodides have some specific effect on advancing arterio sclerosis, checking its spread if not aiding materially toward a limited restoration of the diseased artery. It is possible that the eulogies upon the iodides owe their origin to their sucessful treatment of syphilitic arterio sclerosis, in which these drugs have a specific effect; however, that may be, there is no doubt that the administration of sodium or potassium iodide is good therapeutic treatment in this disease. Careful observation show that the effect of nitro-glycerin is very transient and of no effect unless in enormous doses—one drop of 1 per cent solution every hour, the effect of which is lost as soon as the drug is discontinued. Sodium nitrate may lower blood pressure temporarily, but the effect wears off in two hours' time. It must not be inferred that nitrates have no value in the treatment in this condition but we must remember that they have their limitation. My own belief is, that the most successful treatment of acute hypertension is largely without drugs. Absolute rest in bed, with the removal of all exciting causes, with light liquid diet is largely the line to be followed. Venesection in some cases, seems to lessen the severity of the tension. Morphine is of unquestioned value in the late stages of this disease to relieve the dyspnoeic attacks which so often come on during the night, especially when the heart and kidney are failing to perform their function properly. As to heart stimulant one may use strichnine, spartem, caffeine, or camphor.

I have referred freely to the work of Dr. Warfield of John Hopkins in the writing of this paper.

PRESENT VIEWS REGARDING HIGH BLOOD PRESSURE*

By Fritz C. Askenstedt, M.D., Louisville.

Since high blood pressure is sometimes the very earliest manifestation of disease, and since it is often the precursor of a train of symptoms of the gravest character, its import merits the most thorough research. Researches pursued during the last five years, largely stimulated by Volhard's work on diseases of the kidneys, have revealed that the mechanism of blood pressure is more complicated than had ever been suspected. Only a few years ago we were taught that chronic high systolic tension was produced by arteriosclerosis of the larger arteries and a high diastolic tension by an increased peripheral resistance due to an extension of the sclerotic process to the smaller arteries. Later it was amply demonstrated postmortem that elderly patients who during their life time had been exhibiting a comparatively low blood-pressure were affected by marked athero-sclerotic changes in the main arterial trunks, a condition designated by Albutt, as decrescent arteriosclerosis. The patients affected with high systolic tension, on the other hand, showed anatomic alterations in the smallest arteries (Allbutt's hyperpiesis), and an almost constant association with kidney disease. This association has more lately been emphasized by Volhard and his school, the views of whom are now under discussion by a host of investigators working intently on the problem of the relationship of kidney disease to blood-pressure.

Before discussing this problem let us consider briefly the normal mechanism of bood-pressure as accepted at the present time. The outstanding factors are: (1) The cardiac output per minute; (2) the resistance of the arteries, especially the peripheral arteries; (3) the quantity and the viscosity of the blood itself. To this we may now add (4) capillary resistance.

The cardiac output per minute is regulated according to the needs of the tissues for circulating blood. If from any cause the peripheral resistance is increased, the consequent obstruction to the flow of blood through the capillaries will be compensated for by a corresponding increase of the vis-a-tergo (pulse hard and slow) so as to maintain the required capillary current. Conversely, if the peripheral resistance is reduced by dilatation of the smallest arteries, an increased cardiac action (pulse rapid) is demanded to fill the ebbing arterial system and to maintain a normal pressure. (Exceptions to this rule sometimes occur, as, for example, during sleep.) The cardiac output and the systolic pressure are, therefore, usually determined by the peripheral resistance (Amblard 2). This resistance is normally subject to the action of the vasomotor system, with its controlling centers in the spinal cord and in the medulla. Through this vasomotor control the blood current is directed more or less freely to such parts as are under the greatest stress of function, without any disturbance of the general blood-pressure . To effect a rise in the larger arteries, as for example, the brachial, an increased tone of the arterioles of a larger area, as the skin or the splanchnic vessels, is required. Normally this occurs usually as a result of psychic stimuli. That the vaso-motor system is subject to psychic influences is readily seen from the effect of blushing produced by mental embarrassment, or from the pallor due to intense fear, and that the mental state is capable of affecting the vasomotor system to an extent sufficient to cause a general rise of arterial blood-pressure has now become a well established fact. It has been shown that the blood-pressure of nervous people is more unstable than that of others (Schrumpf 3); that the action of the will in attempting to impel certain muscular exercises will produce the same rise and curve of blood-pressure without the muscular effect as when the movements actually take place (Moritz, Mausing, Kornfeldt 4); that the difference between the blood-pressure of a person under great mental excitement and of the same person during sound sleep may amount to as much as 70 mm. Hg (Kornfeldt); that the minimum blood-pressure of an individual will be obtained after one or two hours' sleep, at a time when this is most profound (Howell and Gibson). Much light has been thrown upon this subject by the recent experiments carried out in the city hospital of Christiania by Carl Mueller (5), who examined 34 adult men and 30 adult women, all below 46 years of age, with a view of ascertaining the normal blood-pressure during profound sleep, as compared with the pressure during the day. The lowest readings were found about 1½ to 2 hours after beginning sleep. The systolic tension averaged during the day 120 mm. for the men and 109 for the women, and independent of the height of the fluctuations of the day pressure, systolic tension fell during profound sleep at night to a level averaging 94 for the men and 88 for the women. The deviations from these nocturnal averages were very slight, usually not over 5 mm., and never more than 9 mm. These figures tally closely with those of the averages of blood-pressure found by B. O. Scheel and by Tavastestjerna in normal persons during sleep, and with the "sleep-drop" of normal pressure observed by Brook and Carroll (6), who made the interesting observation that individuals who worked during the night and slept during the day had a lower day pressure. From Carl Mueller's recent experiments we learn, therefore, that while normal day pressure may present considerable variations, whether comparison is made between different individuals or for the same individual at different times of the day, night pressures during sound sleep exhibit an almost uniform level, considerably lower than that of the day. Mueller concludes that estimates made while the subject is in deep hypnosis afford a better criterion of normality or hypertension than the practice now in vogue. Estimates of night pressures between 101 and 110 mm. for men, and between 96 and 105 mm. for women he regards as doubtful, and anything higher than these as absolutely pathological.

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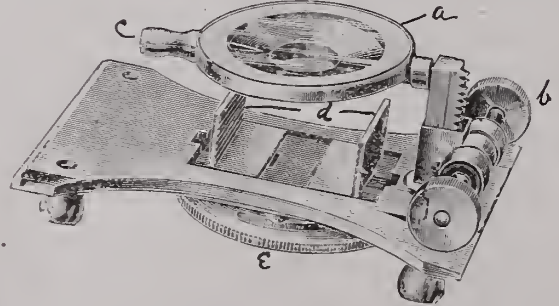
Until recently the role attributed to the capillaries in the production of blood pressure was merely a conjecture. It was generally held that, excepting in inflammatory conditions, their resistance to the blood flow was passive in nature, being intimately connected with the action of the pre-capillary arteries. The work of Krogh (7), of Copenhagen, has revealed that these blood-vessels possess a vasomotor system independent of that of the arteries, and that to some extent each capillary has a certain independence of action. During periods of comparative rest only a small number of capillaries are open to the circulating blood while others lie blood free in reserve until special demand is made upon their function. Their opening and closing is not affected by a rise or fall of blood-presure in the supplying arterioles. Moreover, simultaneously with the usual onward capillary flow an intermittent flow may be observed in some capillaries, and in others, supplied by the same arteriole, even a reversion of the current may occur (Hooker 8). "It seems quite probable that an extra-cardiac force of very considerable significance to the circulation may yet be shown to be present in the capillaries and venules" (Hooker). This opinion is shared by a number of other modern research men, as Hasebrock, Rosenberg, Bier, Magnus, Kylin (9), and others. Capillaroscopy, which is now made available to anyone with a low power microscope, will under certain pathological conditions show striking alterations of the visible capillary loops, in contour, in length, and in diameter, changes which are sometimes attended by a considerable rise of capillary pressure. According to Kylin (19), the normal capillary pressure lies between 100 and 200 mm. H20, but may in glomerulo-nephritis rise as high as 700 mm. H20. It is quite evident that such an elevation of capillary pressure, when general, must have a perceptible influence upon the arterial tension. I have brought for your inspection Kylin's capillary sphygmomanometer, which after some persistence in the acquirement of the technique I have found an instrument of practical usefulness and admirably well constructed.



(a) Air chamber, with glass top and bottom of elastic fish skin, made transparent with oil. Chamber is raised or lowered by set screw (b).

(c) Metal tube connecting air chamber with rubber tube to manometer.

(d) Bed for finger to be examined.

(e) Regulator of width of bed.

The dorsal surface of the finger, just above the nail, is moistened with a drop of oil and inserted into the bed, whereupon the air chamber is so adjusted that its membrane will barely touch the skin. The instrument is placed upon a low power miscrope, a strong direct light is turned on, and the individual capillaries are visualized. Compression is made until the first few capillaries disappear, at which point the estimate of "capillary pressure" is made.

It will be seen that the factors of hypertension vary, as do the lesions of renal disease, and a certain correspondence between them has been detected. The study of blood pressure must, therefore, go hand in hand with the study of kidney disease. For this purpose the classification of the so-called essential diseases of the kidneys hitherto recognized in America is not well suited. Volhard's classification, now generally adopted in central Europe, is based on the three fundamental pathological changes, degeneration, inflammation, fibrosis, and will give us a clearer insight into the interdependence of hypertension and kidney disease. The chart below is abstracted mainly from Berglund's work. (11).

CHART 1

NEPHROSIS	GLOMERULO-NEPHRITIS	SCLEROSIS
Sp. gr, of urine high. Large amount of albumin and casts. No hematuria. No cardiac hyperthrophy. Normal N excretion, usually. Dropsy (0.1 albumin or less). No increase of blood pressure.	Sp. gr. high. Small amount of albumin. Red blood-cells in urine. Heart soon hypertrophies. N excretion often deficient. Dropsy frequent (serum containing more than 0.1 per cent albumin). Blood-pressure raised temporarily	Benign and Malignant. Sp. gr, low, unless heart fails. Albuminuria scant or none. No hematuria. Marked cardiac hypertrophy. N excretion normal in **benign.** N excretion deficient in **malignant.** Blood-pressure raised, often over 200 mm. Hg.

By the above syndromes cases conforming to type may be easily recognized, but mixed types are common, and here a diagnosis of the exact pathological condition is still beset with much uncertainty. However, by the aid of Volhard's water test (12), based upon the two cardinal functions of the kidneys, excretion of water and of solids, the above classification will afford us a position of diagnosis considerably in advance of the old time method. We should bear in mind that glomerulonephritis, as a rule, is complicated with nephrosis, and if complete recovery does not take place in the acute stage, after passing through a period of latency (recognizable by Volhard's water test), it may ultimately merge into a state of malignant sclerosis (true uremia). In fact, most cases of malignant sclerosis are assumed to originate in glomerulonephritis.

Pure nephrosis does not result in malignant sclerosis, but when complicating a chronic glomerulonephritis it favors such an outcome. The nephrosclerosis of arterio sclerosis rarely results in malignancy, though the rest-N often reaches the upper normal level, and it may or may not be complicated with a nephrosis, depending upon a secondary infection.

NEPHROSIS.

This includes the various forms of degeneration, cloudy swelling, hyaline, fatty or waxy, and is mainly due to toxic influences, either infective, as syphilis, diphtheria, tuberculosis, chronic suppuration, septic infection; or to exogenous chemical poisons, as mercury, salvarsan, oxalic acid, mineral acids, etc. It appears to be essentially a toxic disturbance of metabolism, usually manifested by a disturbed mobilization of water and chlorides resulting in dropsy, excepting cases due to tuberculosis or to poisoning with chemicals, in which the dropsical stage may be entirely wanting. This stage is often followed by a dry stage, with persistent albuminuria. Notwithstanding the large amount of albumin and casts usually found in the urine, a considerable proportion of the cases of nephrosis ultimately recover with the disappearance of the original affection, but contracted kidney may, though rarely, ensue. Uremia may occur in acute cases. Uncomplicated nephrosis has no effect upon blood-pressure.

GLOMERULONEPHRITIS.

This is the most frequent form of kidney disease, but is usually overlooked. It is commonly a sequela of sore throat, scarlet fever or some other infectious disease. When it is pronounced enough to produce oedema of the face, bronchitis, and bloody urine, or eclamptic pseudo-uremia, few physicians would fail to recognize it, but the great majority of cases are of a milder type, with slight and transient fever and a urine containing so small a quantity of blood as to be detected only by microscopic examination. Casts are few, mostly blood-casts. Though death may occur during the acute attack, the patients usually appear to make a rapid recovery, but often this is only apparent. In a number of cases healing is not complete, inasmuch as a chronic interstitial proliferation results, leading to a gradual contraction of the glomeruli of the kidneys and more or less of other renal tissues. After passing through a clinically latent state, usually lasting one or more decades, the chronic case gradually merges into the third (or uremic) stage, characterized by the usual evidences of renal insufficiency.

An association of hypertension with acute nephritis has long been observed. Rising blood-pressure during pregnancy is held as a possible omen of oncoming eclamptic pseudo-uremia, a manifestation of acute glomerulonephritis. As a rule, a sudden rise of blood pressure occurs simultaneous with the appearance of albuminuria, blood, and casts in the urine, but occasionally it may precede it. Kylin (13) found that in cases of glomerulonephritis following scarlet fever or tonsiitis, the blood-presure may rise 15-20 mm. Hg. one to seven days before the appearance of albuminuria, while in some cases the blood-presure will subside to the normal level before the urinary evidence has reached its height (Kylin 14). In most cases the rise is transient, lasting but two or three days (Berglund 11) and therefore usually overlooked. Volhard claims that it is always present, though it may last but a few hours. Nevertheless, as careful an observer as Umber (15) writes that even in severe cases, with good heart power, hypertension may be entirely absent. The rise is usually slight, the pressure seldom reaching 180 mm. Hg., but Umber has found it as high as 200 mm. in the absence of true uremia.

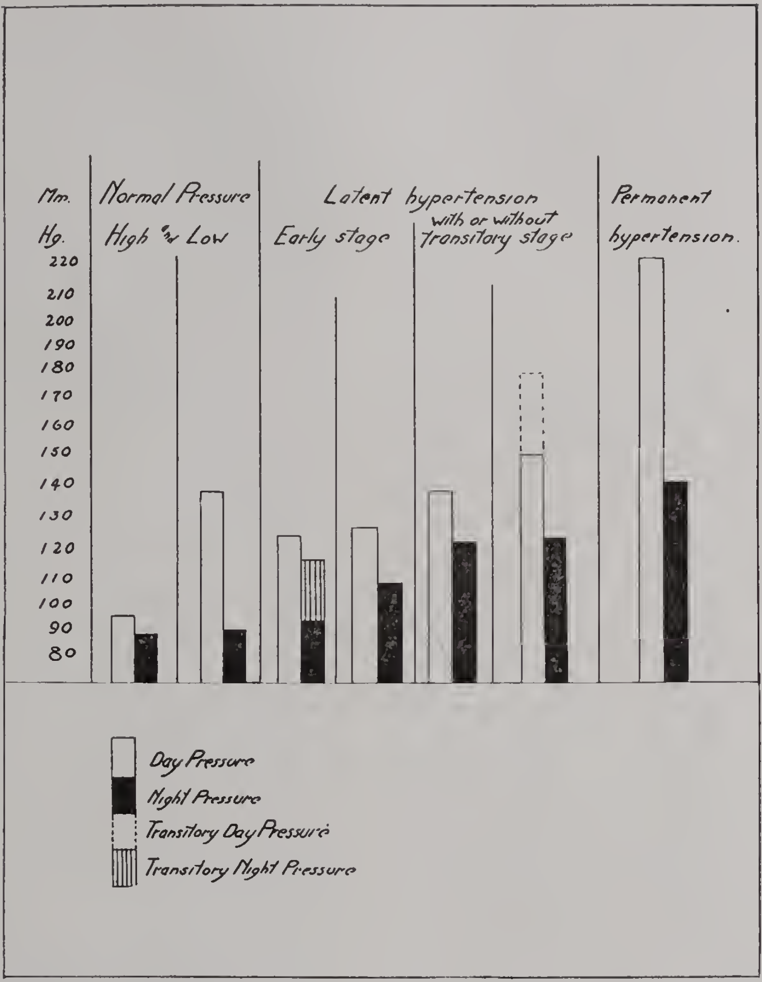
Characteristic of glomerulonephritis is the behavior of the capillaries. These become elongated, tortuous, dilated to several times their normal diameters, changes which may be observed also just above the cuticle of the finger nails and, at times, in the fundus of the eye, and which changes are closely similar to those found in the glomeruli of the kidneys Kylin (14). The lumen of the capillaries will be found more or less packed with blood cells clinging to the capillary wall. An increase of the capillary pressure sometimes amounting to as much as 600 mm. H20 (45 mm. Hg.) above the normal may be observed. With the rise of this pressure there will be a proportionate increase in the arterial tonus in mild cases, but in severe cases the arterial pressure will be in excess of the capillary increment (Kylin (17). Compared with the hypertension of benign nephrosclerosis, the blood-pressure of acute glomeralonephritis manifests less lability, and to the water test it responds with a decided rise, which is not observed in sclerosis, where the capillaries are but slightly altered. In unhealed acute nephritis, a second or latent stage develops, with at first normal blood-presure, rising slowly until it reaches considerable height in the third or malignant stage of sclerosis.

SCLEROSIS.

The great majority of chronic high blood-pressure cases met with are affected with sclerosis of the kidneys. In benign sclerosis the hypertension is characterized by its lability. A fluctuation of 50 mm. Hg. in twenty-four hours is not uncommon. Blood-pressure readings of 200 mm. and over are frequent. In some cases confinement to bed, with its physical and mental relaxation, will reduce such a high blood-pressure to nearly a normal level, but, as Volhard has emphasized, on return to the usual activities of life the blood-pressure will often rise to its former height. Ambard put all cases of arteriosclerosis into two classes: one a transitory hypertension, with freedom from kidney disease; the other a more permanent form of high blood-pressure due to renal disease. Volhard considers one merely a stage preceding the other. Carl Mueller (5) observed 21 cases of benign sclerosis presenting a day pressure of from 141 to 215 mm. (average 169) and an average night pressure of 131 mm. The night pressure was found to present less lability than the day pressure, and his cases could be so arranged as to form a progressive series from an early latent form to a type of permanently high blood-pressure, as is illustrated by the chart here exhibited.

Early latent stage of hypertension: Day pressure rises to a point at the upper limit of physiological tonus. Here it remains fairly constant. Night pressure is also slightly increased and only slightly lower than the day pressure, but at times it may reach the normal level. *Latent stage of hypertension*: When the night pressure at first becomes permanently elevated. *Labile stage of hypertension*: Slowly, or often suddenly, an increased irritability of the vaso motor system is manifested, especially during waking hours, so that the day pressure will rise under psychic stimuli to 170-180 mm. or higher. *Transitory stage of hypertension*: Here the day pressure remains constantly high under the influence of daily life, but will fall to about normal on complete rest, as, for example, confinement to a hospital. *Permanent stage of hypertension.* When even prolonged rest in bed fails to bring the day pressure to the normal level.

With the approach of malignant sclerosis, a transition from non-uremic to a uremic state, blood-pressure assumes a more stabile type and remains so until cardiac failure sets it. Umber (15) believes that a moderate rise—30 to 40 mm. Hg.—can undoubtedly be attributed to true uremia when present, but Machwitz and Rosenberg, Bruhn ,Berglund, and Kylin (9) have observed cases (non-sclerotic) of true uremia that have gone on to a fatal issue without any rise of blood-pressure, and they doubt the power of the retained waste products alone to raise the arterial tonus. Ordinary arteriosclerosis seldom progresses far enough to develop malignant sclerosis of the kidneys, though the rest-N often reaches the



upper normal limit, for death usually occurs from apoplexy or heart failure before such a stage is reached. Even the determination of Ambard's co-efficient will very often give normal figures in arteriosclerotic nephrosclerosis. Guggenheimer (18) found that 41 per cent of his cases showed no increase of this co-efficient. In benign sclerosis the capillaries undergo only slight changes, the loops becoming somewhat elongated and irregular in their course, but no increase in the capillray blood-pressure is noted. In malignant sclerosis, however, a perceptible increase in the pressure has been recorded, but too little work has as yet been done on the capillaries in malignant cases to prove of distinct value.

The intimate association of hypertension with nephrosclerosis has elicted a discussion which has lately focused upon its etiologic relation to kidney disease. The old theory of Traube-Cohnheim explaining that hypertension is a compensatory function provoked by the increased resistance to the blood flow offered by damaged renal arteries, is no longer tenable. Katzenstein (19) proved that ligation of the renal artery did not result in high blood-pressure, and Senator (19) demonstrated that embolism of the smaller renal vessels produced by injections of paraffine did not cause a rise of pressure in the aorta. Considering the great fluctuations of blood-pressure that occur in twenty-four hours in benign sclerosis such hypertension must find its explanation in a functional disorder rather than in a structural lesion. Moreover, Carl Mueller (5) made the observation, which the clinical experience of almost any one of us will confirm, that patients affected with nephrosclerosis pass more urine during the night, when the blood pressure is lower, than during the day. Books and Carroll (6) found no relation existing between the "sleep-drop" of blood pressure and the urinary excretion. Richards (20) has shown that while the amount of the renal excretion is largely dependent upon the pressure within the glomerular capillaries, this pressure is regulated by a reciprocal action between the afferent and efferent arteries rather than by the tension of the general arterial system. He has also observed that the individual glomeruli in the frog's kidney possess an independent power of dilatation and contraction, resulting in an intermittent, arhythmical activity, as has been mentioned regarding the capillaries studied elsewhere by Krogh and Hooker, and that this behavior of the capillaries must have a bearing upon the execretion and dilution of the urine is quite apparent. Thus the Traube-Cohnheim theory has been permanently disposed of.

The theory of Volhard, adopted by such distinguished research men as Romberg, Schlayer, Fahr, attributes chronic high blood-pressure to a more or less disseminated thickening or sclerosis of the intima of the arteries of the kidneys, more especially the afferent arteries, acting reflexly upon the peripheral blood-vessels, possibly by way of the suprarenal gland. This theory is based upon the premise that almost without exception chronic hypertension is associated with such renal lesions. The renal origin is accounted for by the frequent functional strain to which the kidneys are subjected and which renders them more susceptible to toxic influences than the vessels of other organs. Opposed to this theory is an increasing number of equally renowned workers, as Mr. Mueller, Weiss, Pal, v. Monakow, holding the view that the disease is not primarily located in the kidney, but that it is a systemic disorder, of which the kidney lesion is only a component part. According to this view the origin of hypertension is complex in nature, often obscure, and dependent upon a variety of factors, such as constitution (neurosis, gout), intoxication (lead, indiscretions in eating and drinking), functional strain, etc. No parallelism, it is argued, can be shown between the extent of the renal lesion and the degree or duration of hypertension. However, Lee, Monakow, Hirschfelder, Mosenthal, Lee. Moschowitz (16), and others have found normal or nearly normal kidneys in cases presenting high blood-pressure, while, on the other hand, extensive kidney lesion has been detected in patients who have never manifested high blood-pressure.

Moschowitz (21), after an observation of five cases, reaches the conclusion that the presence and the degree of hypertension bears no relation to the extent of the lesion of the kidneys, and advances the hypothesis that the renal lesions are consequent to a persistent hypertension or to the cause or causes of such hypertension. He suggests that even normal arterial tension may be the main factor in the production of benign senile nephrosclerosis, which he regards as an early stage of a more slowly developing sclerosis of the common type. In a recent paper (22) he expresses the opinion that all nephroscleroses are essentially the same, simply differing in their time of development, and discredits the view that an acute inflammation like a glomerulonephritis could be prolonged into a chronic progressive process. The common observation that an acute attack of typhoid may end in a chronic cholecystitis, or an acute appendicitis may assume a chronic course bears evidence of actual transition from an acute to a chronic inflammation, and invalidates his reasoning at this point.

To date, the most extensive research of renal pathology in relation to blood-pressure has been made by Wallgren (23), of Helsingfors. His material was not large, 128 cases of autopsies, but the extent of the investigation and his critical analysis throw much light upon this perplexing subject. Fifty-one cases without cadiac hyperthrophy (thus presumably free from chronic arterial hypertension during life) of ages varying from 4 days to 89 years, were investigated with the object of ascertaining the normal alterations taking place in the renal arteries incident to advancing years. He observed that with increasing age there appeared a hypertrophy of the elastic membrane of the intima, occuring earliest in the larger arteries of the kidneys, then, as age advances, spreading somewhat irregularly to the medium and the smaller vessels, especially in those parts of the cortex which lie next to the pyramids. At 70 years of age there were often found at the bifurcation of the afferent vessels and in the arteriæ rectæ glistening, hyaline bodies between the endothelium and the internal elastic membrane, causing a narrowing of the lumen of the vessel. These arterial changes he regarded as normal senile developments. For further study he selected 30 cases of cardiac hypertrophy presenting renal lesions not essentially different from those normal changes noted above. Three of these cases had a clinical history of chronic hypertension—in one case numerous blood-pressure estimates had been made during a period of four years—and a cardiac hyperthropy attributable only to this hypertension. In the absence of any but the normal senile changes of the kidneys referred to, he concludes that at least not all cases of chronic hypertension are of renal origin. In the nephropathic cases he found the thickenings in the arteries of the kidneys similar to the normal findings, but more generally distributed, a difference which he designates as "quantitative and not qualitative." He further points out, inasmuch as it is well known that considerable obstruction in the arterioles from amyloid deposits does not give rise to high blood-pressure, it is evident that hypertension is not a result merely of an obstruction within the blood-vessels. The observations of Fahr, Jores, and Herxheimer (cited by Wallgren) that the spleen, the pancreas, the suprarenals, and the brain are subject, to a lesser degree, to the same arterial changes as the kidneys, while the skin and musculature of the intestines are almost immune, was confirmed by the findings of Wallgren, who found similar changes in the same organs of normal or subnormal blood-pressure, cases, though seldom as extensively as was exhibited in the cases with high blood-pressure. Taking into consideration the exceptional cases of high blood-pressure without abnormal changes in the arteries of the kidneys, Wallgren is disposed to regard the hypertension primary, either as a contributing cause of the lesions in the arteries of the kidneys, or as a manifestation coordinate with them.

As a cause common to both, an endocrine disturbance has often been suggested, but so far no valid reason has been afforded in its support. The pressor effect of adrenalin is suggestive, and Kretschmer and Reichel claim to have actually detected an increased adrenalin content in the blood-serum of nephritic subjects; but opposed to this are the later investigations of Schlayer and Huelse. Huelse (cited by Kylin), working in Volhard's clinic, makes the statement that in cases of sclerosis with even the highest tension no adrenalin section of the arterial blood can be detected, although in quite mild elevations of blood pressure produced artificially with adrenal injections such evidence is easily obtained. Nor has he been able to discover an excess of any other vasomotor pressor in the blood of hypertonic patients.

Summing up the results of the researches of the past decade in high blood-pressure, we wish to note the following points:

(1) Normally, systolic blood-pressure is determined principally by the vasomotor action of the peripheral arteries of the larger vascular areas, as the skin or the abdominal region.

(2) Pathologically, in glomerulonephritis capillary changes are capable, for a brief period, of raising the general blood-pressure 30-40 mm. Hg.

(3) Pathologically, during the first years of chronic hypertension there is manifested a marked instability of the day pressure, as compared with the night pressure, a condition pointing to a hypersensitiveness of the vosomotor system as the original seat of damage.

(4) The Traube-Cohnheim theory that hypertension is a compensatory response to obstruction of diseased arteries of the kidney is untenable in the light of recent research.

(5) The almost constant association of chronic hypertension with renal disease is now generally recognized, with a growing tendency to regard all so-called essential diseases of the kidneys as secondary manifestations.

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DISCUSSION

William A. Jenkins, Louisville: A great deal of the research work that is being carried on and has been carried on recently with reference to the capillaries, such as Dr. Askenstedt spoke of, is really the retilling of an old field rather than research work, and has not carried us very far in bringing out the true etiology of these conditions. If you look back in the old textbooks of Osler, you will find a description of capillary fibrosis. The real question at issue in both of these papers is this: Given an individual with chronic arterial hypertension, generalized or localized arterio sclerosis, advanced sclerosis or hardening of the kidneys, what is the relationship which exists between these three factors? Is the hypertension the result of the kidney condition, or can you turn it around the other way? Is any one of these three factors either the cause or result of the other two? It seems to me, if we could get some basic understanding of that question, it would help us out materially in this proposition.

Because you find definite pathology in the body somewhere and find prominent symptoms accompanying that pathology, it does not necessarily follow that the pathology is the cause of the symptoms. That is true in the case of the kidneys, and it has been noted by a number of careful observers in a few instances that we have marked hypertension and cannot demonstrate any changes in the arterioles or in the kidneys; on the other hand we have cases in which we are able to demonstrate changes in the arteries and kidneys and have no chronic changes in the hypertension. In the third place, there seems to be no definite method of correlating these factors. In some instances, on the other hand, the sclerosis of the kidney and the hardening of the arteries will be ahead of the process of hypertension. In others, the process of hypertension will be ahead of, clinically and symptomatically speaking, the changes in the arteries and kidneys. We cannot positively regard this question as at all settled by any means. I need not suggest that all three of these things are merely symptoms, that they are part and parcel of one definite clinical picture, that is, the hypertension, the arterio sclerosis, either generalized or localized, and the chronic kidney disease, which becomes finally a sclerosis of the kidney. May they not be and are they not three phases of one and the same progressive change? I think they probably are, and in most instances they are brought about by such things as were mentioned in Dr. Morris' paper. We feel we are pretty close to it. I think specific toxins or poisons, such as bacterial residues, non-specific ones, such as alcohol, or constant irritants of any kind, and retrograde metabolic products, and catabolic products of retention in the body that under ordinary circumstances should be eliminated. Certainly all of the above are causative factors. It is certainly true that we can watch and observe the progress of these three phases which I say are three symptoms and are one and the same in relation to a condition due to a common cause.

The first thing that attracts attention is hypertension. In the beginning it is a mild hypertension. The systolic pressure is raised considerably above normal, whereas the diastrolic pressure remains normal or close to normal for long periods of time. As time goes on, and the toxic factors keep up their work, the diastolic pressure slips about and is fixed well above the normal. By this time, if you make a proper and accurate diagnosis, the probabilities are you would be enabled to find somewhere beginning changes taking place in the arterioles and kidneys. Most of the time in these chronic conditions, aside from the acute toxemias, like scarlet fever, the blood vessels of the kidney are affected first, and from that focus it works itself out, but the other structures of the kidney become involved. With hypertension the systolic pressure is raised and the diastolic pressure is normal. As time passes on the diastolic pressure is raised and there are beginning changes in the arteries and kidneys. In the late stages, there are marked changes in the arteries and kidneys, in the brain, in the eye, with retinal hemorrhages, and we have the typical picture of a chronic interstitial nephritis, either simple without nitrogen retention products, or with nitrogen retention products. Whether the kidney is able to concentrate and get rid of the debris, or whether the toxic products clog up in the system, the system is apt to be overloaded with these products. In the course of time, where dilatation of the heart takes place, we have the last and worst stages of this condition before us.

With reference to treatment, it is clearly prophylatic and conservative. If you can get these patients in the first and favorable stage, before the diastolic pressure has shown any tendency to become markedly elevated, or elevated at all, by rearranging the life of the individual, by rearranging his daily schedule, and getting rid of the toxins and irritating factors which harm these patients, you will be able to hold them at this stage for a number of years, whereas if they are allowed to pursue the even tenor of their way, they go along and wind up with vascular accidents apoplexy; failure of the kidneys with possibly uraemia; or cardiac failure with dilation and general dropsy.

Virgil E. Simpson, Louisville: In the determination of blood pressure and in estimating their value with reference to the progress of disease, we must not fail to bear in mind the physical exercise and dietetic influences which cause a considerable variation in normal individuals, and I have come to regard what I am pleased to call **basal blood pressure** of great importance in forming a correct estimate as to the real conditions obtaining in the arterial system. By basal blood pressure I mean putting the patient in the same basal condition with reference to rest and diet that we do when we undertake to measure the basal metabolism; in other words, twelve to fourteen hours rest, withholding food during that period and determining the blood pressure under these conditions. That is a practical method of determining blood pressure without the disturbing agencies which have been referred to. It is much more easily accomplished than an attempt to take the day and night blood pressure. As I understand the essayist, he meant the night blood pressure was to be taken while the patient was asleep. I fancy in practical experience that cannot be frequently carried out. We cannot spend the night at our patients' homes for the purpose of determining blood pressure, but we can reduce patients to basal conditions and determine their blood pressures then.

Another feature of this subject that interested me, as I listened was the reference of the essayist to the determination of changes that take place in the capillaries. I have followed the literature with interest with regard to the changes that take place in the terminal vessels. I have observed the work of some of the clinicians who have done work along this line, and have observed in a small way in my own service some of the changes that have been described by various others. This was first attempted by Lombard a considerable time ago, and the modern perfected technic has resulted in the use of the stereomicroscope which is better than the single eye piece. With immobilization of the hand, placing the arm on a level with the heart, with a reflected light with a lens, a dry cell battery and a drop of cedar oil over the skin overlaying the matrix, one can see (but not always) the capillaries. Each of the little papillae of the skin contains a capillary loop with its arterial and venous limbs. In the field, with this sort of apparatus, one can see from twelve to fifteen of these loops. The difficulty comes in determining what is a normal loop, and what is the appearance of the loops under the microscope. Trauma and pigmentation, seen in the colored race, and things of that kind interfere with the technic so that it becomes worthless. What are described to be normal arterial and venous limbs, vary so much that it becomes an exceedingly difficult matter to determine what is normal, and it is only by contrasting one's experience in the so-called normals, running over a large number of cases, with those that are definitely known to be abnormal, that perhaps even a semblance of determination can be made.

The conclusion reached with regard to the difference in the capillary loops under these conditions when arterio sclerosis obtains, is the number of loops in the field in diseased conditions becomes lessened. The length of the loop is increased as compared with the normal, and while under normal conditions the loop is not a complete loop, yet in the abnormal conditions there is much greater frequency of the breaking line. Under a normal condition the flow of blood cannot be determined because it is too rapid. You cannot see the red cells in their circuit. Under diseased conditions, where sclerosis obtains, not infrequently one will see a budding of the arterial limb. The circulation is slow Under the microscope one can see occasionally a red cell. There is a difference in regard to ''resting" capillaries that are supposed to be called upon in emergency, and so on.

These cases are interesting to us from the standpoint of science, but they are not very practical, and so far as I have been able to observe, a study of the capillaries under the microscope is of very little use indeed. It may come to be of greater service to us in the future in a diagnostic way, but as a matter of therapy it will not benefit us. The patient is interested in what we are going to do for him rather than in devoting so much time in the determination of what has taken place in his body. The question of drugs we are going to use for him in relieving these high blood pressures leads me to say this: I quite agree with the statement made that high blood pressure is not of itself an indication for therapeutic measures, just as the determination that there is a valve lesion present is not of itself an indication for treatment. The heart may be properly compensated; it may be doing its work in spite of a lesion, and there is no necessity for therapy. In my judgment, with so-called high tension, it is not always advisable to reduce that tension by treatment. Not infrequently we do harm in attempting to reduce rapidly that which is in keeping with the diseased process.

When symptoms manifest themselves some sort of treatment is indicated. I have tried in the past two or three years the management of some of these cases of hypertension by the use of the high frequency current, and while I have not come to a definite conclusion as yet, I have kept fairly accurate records of these cases which I have selected for treatment with the high frequency current. I have used no medication but do give diet and exercise directions. I have not come to a definite conclusion as to whether this treatment is worth while or not. It is true, high blood pressure can often be reduced very materially by this current. I have seen several cases of this sort with severe headaches, not pituitary in their origin, entirely relieved and the patients made comfortable enough to go on with their usual work without any medication whatever. If we can secure such results from such a harmless procedure as the high frequency current, it is better than filling these patients with iodides or better than to give them drugs of the nitrate group that are ephemeral in their effects, and short lived in their results. Nitro-glycerin is useless because of its fleeting effect. Sodium nitrate lasts a little longer, but in the main they are not highly effective remedies and can scarcely be called worth while.

DEAFNESS FROM WAX IMPACTIONS. THREE CASES.*

By S. G. Dabney, Louisville.

The three cases I wish to report represent a very common affection; the history of each reminding me of a remark once made by Dr. G. S. Hanes, i. e., "always examine your patient." These cases also illustrate how misleading the history may sometimes be.

(1) A lady came to me two weeks ago saying she recently had mumps, that "it seemed strange she should wait to have mumps until the age of forty years." A distressing part of the history was that she had suddenly lost her hearing. I explained that every now and then mumps was attended with inflammation of the nerve or hearing, that I had seen such cases, and the prognosis was generally unfavorable. The history seemed so clear that at first I took it for granted that deafness had resulted from mumps. Examination disclosed a large quantity of hardened wax in both auditory canals. This was removed by syringing and immediately she was well. This case shows how misleading a perfectly clear history may sometimes be.

(2) Another lady recently brought her daughter of twenty to me stating "my daughter has been hard of hearing for two or three years." She expressed herself as having little confidence in "ear specialists," believing they often did more harm than good, and for that reason the daughter had never applied for treatment; but now she was much handicapped in school because she could not hear well. The mother finally remarked: "do not try to do much to her because the chances are you will do more harm than good." I took it for granted from the history that the girl probably had progressive deafness from ordinary middle ear diseases; and with a history such as I have related this was a most reasonable assumption. Examination revealed a large amount of impacted wax which was syringed from both auditory canals and she was well. This accumulation of wax had evidently been present for two or three years, her hearing had become markedly impaired, and she was greatly handicapped because she could not hear her teacher nor the recitations at school.

(3) A boy of twenty came to see me saying he thought thunder and lightening had affected his hearing; that during a storm he heard a tremendous clap of thunder and saw a flash of lightening and that he instantly became dizzy and had not heard well since then. This was something new to me, as I had never heard of the hearing being affected in that way. He also had an accumulation of wax in both auditory canals which was removed with syringe and he was well.

The explanation of deafness in the latter case is that when the clap of thunder came he unconsciously jerked his head quickly and the plugs of wax in the auditory canals were caused to impinge on the drum membrance causing dizziness and disturbance of hearing.

I report these three cases to again emphasize Dr. Hanes' remark to always examine the patient, and to show how misleading a perfectly clear history may sometimes be.

DISCUSSION.

J. R. Peabody: The unusual feature in Dr. Dabney's report is that deafness persisted so long before the patient consulted a specialist. Wax impaction in the auditory canal is very common, the treatment is gratifying, the result is immediate and pleasing to the patient.

The question is often asked how the accumulation of wax can be prevented. I am aware of no way in which this can be done. Many elderly people consult us once or twice a year complaining of deafness which developed suddenly from wax impaction. Younger people also develop sudden deafness after getting water in their ears. The wax may have been in the canal for some time but did not impinge on the drum membrane until water entered the ears.

It is remarkable how much wax may be present in the auditory canal without producing deafness. This is explained by the fact that the wax is not pressing on the drum, or there is a passage through which air enters and causes the drum to vibrate.

There is nothing unusual about the cases reported, except the patients delayed consulting the specialist, and the history indicated something serious but which proved to be a trivial affair.

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*Clinical report before the Louisville Medico-Chirurgical Society.

PARTIAL REPORT OF EXAMINATION OF EYE, EAR, NOSE AND THROAT OF PATIENTS IN EASTERN KENTUCKY STATE HOSPITAL.

By J. A. STUCKY, Lexington.

Before a joint session of the Council of the State Medical Association and the State Board of Health, September 2, 1922, I presented the report of the results of my examination of the majority of the inmates of the Easern Kentucky State Hospital, prefacing the report with the statement that since the publishing of a series of articles by me in 1906-1907-1908 on "Some Mental Symptoms Due to Nasal Accessory Sinus Disease." I have been anxious to make an examination of the patients in our State Hospital along the lines made by Amberg, Sohier, Bryant, and later others in the East, to ascertain if the mental trouble especially in the poor and ignorant could be traced in many cases to nasal accessory or perhaps to some other disease. Since then occasional articles have been written endorsing the views I expressed and recently, February, 1922, P. Watson Williams in the London Lancet says, "that neurasthenic symptoms caused by purulent or non-purulent conditions in the sinuses may be periodical or worse in cold damp weather, and the conditions may cause melancholia, suicidal impulses or mental delusion. The subjective foul odor is probably one of the causes of olfactory delusion which alienists express as symptoms of insanity."

The confirmation of so well known writer on nasal accessory sinus disease as Watson Williams is a stimulus to others to go more into detail of the diagnosis of those confined in our State institutions.

The following report is made without comment, but the suggestions and advice of the internist, alienist, and neurologist as well as the thoughtful scientist is respectfully urged.

In making these examinations I had the hearty approval and co-operation of the Superntendent and his staff and the helpful advice of Dr. Chas. N. Kavanaugh.

Number of patients seen	647

Disease of the Eye:

Lids and Conjunctiva,

Acute catarrhal conjunct	1
Active trachoma	0
Old trachoma, cicatricial	14
Total	15

Cornea,

Pterygium	1
Healed scars	4
Keratitis, organizing	2
Keratitis, old	1
Total	8

Lens,

Cataract, incipient	27
Cataract, immature	21
Cataract mature	8
Cataract, calcified	2
Cataract, traumatic	1
Dislocation forward	1
Post polar	1
Total	61

Muscles,

Strabismus, Convergent	6
Strabismus, Divergent	3
Total	9

Vitreous,

Cloudy	4
Total	4

Retina,

Retinitis, diabetic	1
Retinitis, albuminuric	1
Retinal hemorrhages	4
Retinitis, proliferans	1
Total	8

Choroid,

Choroido-retinitis, leutic	8
Choroidal atrophy, myopic	8
Total	16

Optic Nerve,

Atrophy	13
Neuro-retinitis	5
Neuritis, luetic	5
Neuritis	6
Total	29

Glaucoma, simplex	3
Glaucoma, secondary	1
Phthisis, bulbae	1
Total	5

Iritis, old	4
Ptosis	1
Entropion	1
Nystagmus	1
Total	7

Disease of Nose:

Atrophic Rhinitis	13
Chronic Hypertrophic Rhinitis	4
Total	17

Septum Deflected	332
Septum Obstructing	29
Septum Ulcerated	7
Septum Perforated	10
Septum Spurs	13
Total	391
Turbinates:	
Turbinates, Hypertrophied	142
Turbinates Ulcerated	2
Ethmoid, chr. sinus	34
Nasal Polypi	10
Maxillary Antrum, pus	1
Total	189
Disease of Mouth and Pharynx:	
Gingivitis and Pyorrhoeas	196
Caries, dental	245
Chronic hyper and atropic tonsilitis	197
Septic Tonsilitis	22
Ulcers pharanyx	2
Chr. Pharyngitis	243
Perforating palatine ulcers, healed	2
Total	907
Grand Total	1665

Larnygeal examinations not made.

No discharging ears but many cases retracted drums and with occasional perforations.

Very little deafness (10) cases, none complete.

Urticaria Following Antisyphilitis Treatment.—Following arsenic therapy Kreutzmann's patient complained of itching of the right lower leg. Examination showed a reddened urticarial wheal the size of a man's hand over the inner portion of the right tibia. After another treatment the patient complained of intense itching over the entire body. His temperature was 101.2F. His hands were so greatly puffed up that the tense caused pain and the patient was unable to close his fists. The feet were so swollen that shoes could not be worn. There was marked edema of both legs, with pitting on pressure. Over the entire body there were huge urticarial wheals which were most pronounced wherever there was pressure on the skin, as on the back, the buttacks and about the waist. The wheals were raised, felt hot and were dusky red in color. None of the symptoms of arsenic poisoning were present. After six days all symptoms had disappeared.

REPORT OF A CASE OF PERNICIOUS ANEMIA OF THE APLASTIC TYPE WITH SOME REMARKS ON PERNICIOUS ANEMIA.*

By J. Rowan Morrison, Louisville.

The following case is called pernicious anemia in that it belongs to that class of deadly anemias. I believe it to be a case of idiopathic aplastic anemia.

Mrs. R., white, age 49 years; housewife. Father died of Bright's disease at the age of 63. Mother died at 44 years of Addison's disease. Patient, while never robust, had always enjoyed good health until ten years before when she had a moderately severe attack of acute rheumatism, from which she recovered without permanent damage to joints or heart and had no recurrence. This attack was probably due to infected teeth.

When she came under my observation about eight months before she entered the hospital she had a number of teeth which X-ray examination showed to be badly infected with apical abcesses. She had previously had much dental work done. I advised the removal of infected teeth at this time, but the patient did not have this done, and did not return to me until October 12, 1922, when she complained of weakness and a tendency to have "bruised spots" over her body whenever she had struck any object. There was no complaint of digestive disturbance and no evidence of a red, dry tongue. She said her symptoms had begun only about a month before.

I had Dr. Morris Flexner examine her blood which showed the following:

Hemoglobin (Sahli method) 68% Red blood corpuscles 3,060,000 per cmm. Leucocytes 11,000 Color index 1.1 Differential count: Polymorphonuclear neutrophiles 52% Lymphocytes 46% Endothelial leucocytes 2%.

Red cells regular in size and shape, staining somewhat paler than usual. No poikilocytosis; slightly delayed coagulation time.

She was advised to have her teeth extracted and go to an infirmary for observation. She did not take this advice, but went home and did not return until November when the weakness was marked. There was bleeding of the gums, and many hemorrhagic spots. She now wanted to have her teeth extracted, but I advised against it, and her dentist refused to operate on the teeth until further observation had been made.

A blood examination on November 6, 1920, showed::

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*Read before the Louisville Medico-Chirurgical Society.

Hemoglobin 59% Red blood corpuscles 2,000,000 color index 1.4 Differential count: Polymorphonuclear neutrophiles 25.5 Eosinophiles .5 Lymphocytes 71.5.

Staining somewhat pale, slight anisocytosis, occasional poikilocyte, no nucleated forms.

She went to Norton Infirmary and Dr. Sidney Meyers saw her with me. We considered a transfusion, but advised against it. She was given 20 cc of horse serum and 3 grains of cacodylate of soda on alternate days. She had no fever or redness of the tongue, no symptoms referable to the nervous system, but a poor appetite. Under this treatment the patient seemed to improve somewhat in that her appetite returned, the gums stopped bleeding and no new hemorrhagic spots appeared on her body. However, in a week she began to have temperature of 100 to 101 F. There was tingling in arms and legs, and complete loss of appetite. On November 20, the red blood cells were slightly less than 2,000,000, there was no appetite, and increased tingling in arms and legs. November 21, a transfuson of 500 cc whole blood was given by Drs. Louis and Wallace Frank, using the Kipton-Brown tube. There was no reaction and the patient was so much relieved that she began to eat, the tingling disappeared, and she said she "felt as if she had new life."

A blood examination by Dr. Flexner on November 22, 1920, showed:

Hemoglobin 48%, red blood corpuscles 2,300,000, leucocytes, 3,800, color index 1, Differential count: polymorphonuclear neutrophiles 44% lymphocytes 54.

Polymorphonuclear neutrophiles 44%
Lymphocytes 54

Some macrocytes and microcytes, some poikilocytes; no nucleated forms seen, staining reaction pale. Very few platelets seen.

The patient's improved condition continued for about five days, when she again lost her appetite, and began to have more fever and tingling.

November 26 a blood count by Dr. Flexner showed: :

Hemoglobin 48%
Red blood corpuscles 1,850,000
Leucocytes 2,700
Color index 1.3
Differential count:
Polymorphonuclear neutrophiles 49%
Lymphocytes 50
Endothelial leucocytes 11

Staining reaction rather pale, some macrocytes and microcytes; some poikilocytes. Practically no platelets seen.

On November 29, red blood corpuscles 1,660,000, hemoglobin 45%.

Another transfusion by Drs. Louis and Wallace Frank of one pint of cirtrated blood. There was no immediate reaction, but thirty minutes after the patient had returned to her room there was a chill and the temperaure rose to 105F. A hypodermic injection of morphin and atropin was given and in two hours her temperature was 99 F. and she felt very well. The next day she had a fair appetite, but was not as much improved as after the first transfuson. The temperature ranged from 100 to 102% F. although the pulse was in the eighties. A splenectomy was considered, but on account of the patient's condition very little could be promised, and she was much averse to having it performed.

At this time her relatives in the East, after consulting with their physicians, advised that they would send a dentist to remove her diseased teeth. On December 2, I had a consultation with Drs. Louis and Wallace Frank, Dowden Morris Flexner and Moren. It was thought advisable to try this.

The blood examination at this time, December 2, 1920, by Dr. Flexner showed as follows:

Hemoglobin 51%
Red blood corpuscles 2,240,000
Leucocytes 2,900
Color index 1.1
Differential count:
Polymorphonuclear neutrophiles 20%
Basophiles 1
Lymphocytes 77
Endothelial leucocytes 2.

Stained well, few microcytes, few macrocytes, some poikilocytosis. No nucleated forms seen

This was quite an improvement since the last transfusion.

Under novocaine anesthesia December 3, the dentist, Dr. McCampbell, removed six teeth and immediately applied plaster of paris to control the hemorrhage. She did not have much shock, and the hemorrhage was controlled remarkably well; but on December 4, (the next day) there was considerable oozing around the pack. As she was sensitive to horse serum, I gave hypodermatically 30 cc of sheep serum, which practically controlled the bleeding and the next day the dentist removed four more teeth, and applied a new plaster pack. The temperature continued from 101 to 103 F. The hemorrhage from the gums was controlled for several days, but began again on December 7, when another plaster pack was applied, and on December 8, 30 cc more of sheep serum was given which helped to control the hemorrhage very much.

On December 8, she was again transfused with one pint of blood, the citrate method beng used, by Drs. Louis and Wallace Frank. There was no immediate reaction, but although the patient was kept very warm during the transfusion in thirty minutes afterward she had a chill lastng forty-five minutes, and the temperature rose to 105 1-5 F. and pulse to 148. A hypodermic of morphia, gr. 1-8, was given, and in several hours the temperature and pulse were normal. She felt somewhat better after this transfusion, but the appetite did not return, although the bleeding from the gums practically stopped untl December 13. On this day a blood examination by Dr. Flexner showed:

Hemoglobin 39%
Red blood corpuscles 1,660,000
Leucocytes 2,800
Color index 1.2
Differential count:
Polymorphonuclear neutrophiles 18%
Lymphocytes 82

Stained well, many macrocytes, few microcytes, some poikilocytosis. No nucleate forms seen.

The hemorrhage from the gums began again and was fairly well controlled by packing by Dr. Rounds, and the administration of sheep serum. However, she lost all appetite, became very restless, and uncomfortable, and showed a steady decline.

On December 20, blood examination by Dr. Flexner showed:

Hemoglobin 27%
Red blood corpuscles 1.024,000
Leucocytes 1,900
Color index 1.3
Differental count:
Polymorphonuclear neutrophiles 39%
Lymphocytes 46
Endothelial leucocytes 15
No platelets seen.

Staining slightly deeper than normal, slight anisocytosis, normal for most part, occasional poikilocytes, no nucleated forms seen.

The patient lapsed into a most uncomfortable state, wtih marked dyspnea, rapid pulse, and died December 28, 1920.

During practically the whole time after the cacodylate of soda was discontinued, she had Fowler's solution in moderate doses, hydrochloric acid and a preparaton of bone marrow. The patient welcomed the transfusions and asked for them. The last two transfusons were from the same donor and matched perfectly. The blood Wassermann done by Dr. Stuart Graves was negative. Stool examinatons showed no parasites or ova, balintidium coli or others. Urobilin was present. The urine was examined frequently, and was practically negatve, except a slight thace of albumin occasionally. Urobilin was present in small amount.

We have here an aplastic type of pernicious anemia, and there was, except in the examination of October 12, always a leuopenia with a marked lymphocytosis, a great diminution or practical absence of blood platelets and no effort on the part of the blood to regenerate.

I have reviewed some of the later literature on this subject, but can find nothing that offers any particular help in this distressing disease. The real etiology remains unknown, though much careful and painstaking work has been done by competent observers.

Chronic sepsis, intestinal putrefaction, and intestinal parasites, especially balintidium coli, have had their advocates, but that these are actual causes has not yet been proven.

Formerly it was thought that the nerve manifestations were due to the altered condition of the blood, but it is now believed that these changes occur along with the other pathological changes occurring in the disease, as cases have been reported where the nerve symptoms began before any marked blood changes had occurred, and often the nervous symptoms persist during a remission, when the blood picture is practically normal.

In a paper by W. J. Mayo, on Pernicious Anemia ,with special reference to the Spleen and Large Intestines, in Annals of Surgery, 1921, he reports that fifty splenectomies for pernicous anemia were done at the Mayo clinic prior to November 1,1917, and that the operation was almost completely discontinued for 3 1-2 years. In a recent survey of these fifty cases he finds that 21.3 per cent survived the operation three or more years, living 2 1-2 times as long as the average in a similar group of non-splenectomized patients, and that 10.6 per cent were alive after more than five years.

If these fifty cases there were three postoperative deaths, all of which occurred in advance cases, and in which the operation was undertaken as a last resort.

Osler remarks in his trite way in his 1920 edition that, after reviewing the work of Bloomfield in Bulletin Johns Hopkins Hospital for 1918 on the results of transfusion, even with the improved methods of the present day the results are about the same as those procured by the men who began this procedure in the seventies.

There is no cure for pernicious anemia, and the palliative measures are heroic ones.

Personally I have seen one case with a remission of two years. One remission of twelve years has been reported.

DISCUSSION

L. Wallace Frank: Dr. Morrison has reported an exceedingly interesting case. We saw the patient after her admission to the hospital and performed the blood transfusions. It is my opinion that in aplastic anemia blood transfusion does very little if any good. In the case reported, however, transfusions were justifiable as we knew the cause of the condition and hoped that by removal of this cause the blood-forming organs would again functionate. Following the transfusions however, there was no attempt toward new blood formation. Patients can be kept alive for some time by repeated transfusions, but when these are discontinued death ensues.

It must be remembered there are two types of pernicious anemia, viz., the aplastic, characterized by destruction of the old red blood cells and no young red cells are formed. In this type the mortality is one hundred per cent. In the plastic type the hemopoietic system may be stimulated to regenerate the blood and every method of treatment which promises anything should be used, including splenectomy in selected cases. We must consider that in plastic anemia the disease may primarily involve either the blood forming or the blood destroying organs. In cases where the fault lies with the blood forming organs the conditions is chiefly medical and much good can sometimes be accomplished and life prolonged by blood transfusion and other methods of treatment. I recall one case in which transfusion was performed at intervals for more than a year. The patient had a severe type of anemia, yet transfusion seemed to stimulate the blood forming organs to greater activity and she would improve promptly and remain apparently well for some time. In anemia due to red cell destruction, which can be demonstrated by the presence of an excess of urobilin in the feces, not infrequently there is more or less splenic enlargement. While we know little about the function of the spleen, it is generally conceded that it has something to do with blood destruction, and in such cases early splenectomy should be considered, and favorable results have been obtained by this treatment. When the patient is seen late in the course of the disease, after the blood forming organs have practically ceased to functionate, the probability of a good result from splenectomy is correspondingly reduced.

As Dr. Morrison has stated, when whole blood was used his patient had no reaction, but severe reaction followed transfusion with citrated blood. Why reaction occurred following the use of citrated blood I do not know. However, observation has shown that where citrated blood is used in transfusion one out of every four or five patients will have a decided reaction; where whole although it does occur. Therefore, in chronic blood is used reaction is not nearly so common anemia it is probably better to use whole blood; in septicemia whole blood is much more satisfactory than citrated blood as the bactericidal property of the serum is not disturbed. In plastic anemia blood transfusion should always be tried, but the procedure has only a limited indication in the aplastic type. In the latter transfusion may be justifiable, but if there is no attempt on part of the patient's blood forming organs to regenerate new blood, we may as well quit because we are simply wasting the donor's blood.

Occasionally following blood transfusion there is a certain amount of hemolysis. I recall one instance in which transfusion was performed with whole blood: the patient had primary anemia of the pernicious type; he had not received more than one ounce of blood before he became deeply jaundiced and began to vomit. That night hemoglobin was voided in the urine and passed in the feces. However, there seemed to be a beneficial effect on the blood forming organs and later the blood picture markedly improved. The only explanation we could offer for this was that the hemolysis apparently stimulated the blood forming organs. However, hemolysis should be avoided, it is dangerous, and we have observed death rapidly ensue when transfusion was done with blood which would not mix with the cells and sera of the recipient.

John Walker Moore: The blood picture described by Dr. Morrison indicates that his diagnosis was correct, and the patient undoubtedly had aplastic anemia. We know more about pernicious anemia than aplastic anemia because the former is more commonly observed; but the fact remains that our knowledge concerning the entire subject of pernicious anemia is exceedingly limited. I had hoped Dr. Morrison would advocate a more expressive name than pernicious anemia; many new terms have been suggested by other writers, but we are still in the dark as to the cause of the disease. Recently someone suggested changing the name to "chronic hemolytic anemia of unknown etiology." Ashby transfused thirty-three patients with pernicious anemia, who were not of Group IV, with blood from Group IV donors, and studied the elimination of the transfused blood in four cases for about three months, in ten cases for one month or more, and the rest for shorter periods. In none of the cases of pernicious anemia studied was there any elimination of Group IV blood that could not be duplicated in normal persons. On the other hand, in two cases of aplastic anemia and one of hemolytic jaundice there was a progressive and rapid elimination of Group IV transfused blood. The author concludes that it is not a hemolytic toxin that produces anemia in pernicious anemia, and that such active blood destruction as does occur is due to the activity of blood destroying organisms rather than to any inherent weakness in the pernicious anemia blood corpuscle. I believe it is best to continue the old term pernicious anemia, as chronic hemolytic anemia would imply destruction of red blood cells with no generation of new cells in the bone marrow.

As to the hemorrhage which occurred in Dr. Morrison's case: I believe this was due to decrease in the number of platelets in the blood stream. I have never seen aplastic anemia with such marked lymphocytosis, although a few cases have been observed where in the later stages the lymphocyte count was very high, and there was also leucopenia.

Little is actually known concerning the treatment of pernicious anemia. There are periods of remission and relapse but no method of treatment is known by which remission or cure can be promised. I seriously doubt whether splenectomy or any other method of treatment has prolonged life very much. With or without treatment the patient may have remissions, but the course of the disease cannot be changed by therapy. We may resort to blood transfusion or splenectomy, we may administer arsenic, cacodylate of soda, etc., but the disease progresses just the same. We had a patient with pernicious anemia in the Louisville City Hospital not long ago. Transfusion was practiced fifteen or twenty times with citrated blood and each time there was some improvement; but he was gradually getting closer to his grave just the same.

There has been considerable discussion as to the cause of reactions after transfusion with citrated blood. A strong citrate solution may be injected alone without producing reaction, so it cannot be due to this agent. It is also true that in certain individuals transfusion may be performed any number of times with citrated blood without reaction. I have thought possibly reaction was due to the water used in making the solution. I have never seen a reaction where freshly redistilled water was used in making the solution.

Leon K. Baldauf: I now have under observation a very interesting case of pernicious anemia; the patient is passing through her second relapse. After the first relapse she complained of peculiar sensory disturbances, paresthesias,—and it was noted that her gait simulated that of a patient with locomotor ataxia. Five weeks ago she had the second relapse starting with a terrific diarrhea, and she then began complaining of pain in the calf muscles accompanied by peculiar nervous and sensory disturbances. The latter closely resembled the manifestations noted in locomotor ataxia. It may be interesting to note that in many cases of pernicious anemia at autopsy there have been found degenerative changes in the posterior columns similar to what we find in locomotor ataxia and sometimes changes in the lateral columns of the cord.

I mention this case mainly because of something that happened two weeks ago: The telephone rang and I was asked to visit the patient at once, that she was having terrific pain in the gastric region, so severe in fact that morphine was required to afford relief. The pain was typical of gastric crisis. We feared at first to give morphine thinking possibly she might have a perforation of a gastric ulcer; but the drug was later administered and within three hours she was comfortable. Upon inquiry we learned that she had suffered several previous gastric attacks less severe in character. As I have stated, this was a case of pernicious anemia with nervous and sensory manifestations simulating locomotor ataxia, and there were typical symptoms of gastric crisis. Such cases have been reported in the literature from time to time.

We hesitated about giving the patient morphine because of an experience we had some time ago. The patient had the classical symptoms of locomotor ataxia; he had severe pain involving tissues around the testes; he also had typical gastric crisis and died following the administration of morphine. Autopsy disclosed a gastric ulcer. With this case in mind we hesitated to give the last patient morphine fearing she might have a gastric ulcer; but the drug was administered, the pain shortly subsided and the patient felt perfectly well. The cord lesions in pernicious anemia are practically identical with those noted in locomotor ataxia.

I feel safer about the diagnosis of pernicious anemia when the blood picture shows a relative increase in lymphocytes. The prognosis is grave when there is leucopenia. The leucocyte count may be as low as 800 to 900, and the lower the leucocyte count the graver the prognosis.

One of the most distressing symptoms in pernicious anemia is diarrhea. It has been shown that in practically all cases there is absence of free HCl in the stomach. Diarrhea can usually be controlled by the administration of dilute HCl. I took advantage of this knowledge in two or three cases where gastro-enterostomy had been performed. The stomach emptied itself too rapidly and I thought there was probably an insufficient quantity of HCl mixed with the food. Dilute HCl was administered and the diarrhea subsided. In the first case mentioned there was a terrific diarrhea, the patient having ten to twelve fecal evacuations daily; after dilute HCl had been given for three or four days the diarrhea ceased.

As to blood transfusions in pernicious anemia: I agree with Dr. Morrison that this is a hopeless disease; we may be able to tide the patient over for a time, that is about all we can accomplish. I am against blood transfusion because I believe it can do no good and may be harmful. In pernicious anemia poison products, probably from the gastro-enteric tract, in the circulatory system destroy the red cells. Just how destruction is accomplished is uncertain, but we know the cells are destroyed because they become markedly reduced in number. When blood is transfused into the circulation the red cells are destroyed and become foreign substances, and this cell destruction proceeds so long as formation of poisonous material continues. If more fuel is added to the fire by blood transfusion more poisonous products are formed in the circulating blood and therefore absorbed.

I do not believe splenectomy does much good in pernicious anemia. I think we must still rely on the older methods of treatment, the use of arsenic, iron, etc. Dilute HCl is indicated because of the absence of free HCl in the gastric contents.

J. Rowan Morrison (closing): As Dr. L. W. Frank has stated possibly it was unnecessary to give more than one blood transfusion in the case reported. However, the patient and her family were very insistent that something be done; after the first transfusion the patient improved and wanted more; and in making the second and third transfusions we felt that we were doing no harm even if no benefit resulted.

Referring to Dr. Moore's remarks: The name idiopathic anemia has been suggested as preferable to pernicious anemia. However, the disease cannot always be correctly called idiopathic, because we know the apparent cause is sometimes chronic sepsis. After the septic process is removed blood transfusion sometimes stimulates the bone marrow to generate new blood. It was with this idea in mind that we gave the last two transfusions in the case I reported. The patient had markedly infected teeth, and this type of chronic sepsis has been considered by some observers as the possible cause of aplastic anemia. The idea of the first transfusion was to improve the condition of the blood, and then have a skillful dentist extract the abscessed teeth which we presumed might be the focus of infection. The teeth were removed successfully, the dentist applied plaster of Paris to control hemorrhage, and serum was administered to increase blood coagulation. There was very little blood actually lost following removal of the teeth. Most writers state that the proper thing to do in so-called pernicious anemia is to find the cause and remove it if possible, and after removing the cause improvement may be expected from blood regeneration. I must say that the cases in which the cause can be found are probably very rare.

With further reference to blood transfusion: While the use of whole blood is an excellent method, this is sometimes impossible because a suitable donor cannot always be found. Just what causes the reaction following the citrate method of transfusion I do not know. There may be something in the suggestion made by Dr. Moore.

My experience with pernicious anemia is that we know little about it, nor are we able to accomplish much for the patient. The usual history is that the disease progresses, with remissions and relapses, with or without treatment. Benefit sometimes ensues from the administration of arsenic and iron and the ingestion of abundant green vegetables.

I recall a woman seen with Dr. G. S. Hanes; she had a tremendous amount of trouble with her lower intestinal tract; she had lost considerable blood and finally developed typical symptoms of pernicious anemia. It was not the simple type of secondary anemia noted following serious hemorrhage, but was pernicious in character. Under regulation of diet and administration of Fowler's solution the patient soon began to improve, the blood picture became practically normal, and for more than a year she remained in fairly good physical condition. She continued to have the characteristic red tongue although the rectal trouble did subside. Within two years she had a relapse with the usual result.

So far as the etiology of pernicious anemia is concerned: I do not believe we know anything about it. We have all doubtless seen the nervous and sensory types described by Dr. Baldauf. In my opinion there is a pathological condition in many of the organs of the body, rather than in the stomach, the intestine, or any one organ.

Case of Extralaryngeal Cyst.—The only complaint elicited by Taylor in his case was severe, distressing choking sensations extended over a period of seventeen months. The patient felt that someone had their hands on his throat. On assuming an upright position, the sensation subsided. There was no impairment of voice or difficulty in swallowing. Laryngoscopic examination showed a round tumor 0.5 cm. in diameter involving the lingual surface and right lateral border of the epiglottis, crowding the epiglottis posteriorly and to the left. The tumor was glistening and of a grayish color, with a smooth surface traversed by several large blood vessels. One year later the tumor was excised. There was an immediate discharge of a yellow gelatinous fluid. The examination of the specimen showed it to be a true cyst or cyst adenoma. There was no charge or abatement in the severity or frequency of these severe spells of chocking, however. There was no recurrance of the tumor. The epiglottis was still turned on itself and occupied the same plane that it did prior to the removal of the cyst. That portion showing a definite entropion was removed. There was no further paroxysms.

POST-GRADUATE MEDICAL STUDY IN LONDON

By Emmet F. Horine, M.D., Louisville.

London has always enjoyed the reputation for affording abundant material for clinical study. The great disadvantage in the past has been that there was little or no correlation of the work. A student interested in a single branch of medicine could come and secure work in some hospital devoted entirely to his specialty and receive excellent instruction. But for the general post-graduate student the road was not clear and most frequently it was found impossible to arrange hours at the various hospitals with any certainty.

There are three types of hospitals in London which afford available facilities for teaching, namely: (1) General hospitals, of which there are thirty-six, twelve of these having medical schools attached; (2) Special hospitals such as the chest, eye, orthopedic, heart, cancer, throat, et cetera; (3) Poor law infirmaries. In all, these hospitals represent approximately 38,000 beds. Roughly fourteen per cent of these beds are used for undergraduate teaching. Until recently a portion of the remaining beds has been used for post-graduate teaching but not in a co-ordinated manner.

The late Sir William Osler was impressed with the enormous wealth of clinical material and saw that it was not being fully utilized. Just before the war he began to investigate means by which post-graduate work could be improved and in consultation with representatives of the various teaching institutions, he inaugurated the "Post-Graduate Association." With the exigencies of the war and consequent conditions, the Association was unable to make any headway and no practical scheme was formulated.

During the latter part of the war a large number of medical men of the allied countries were stationed in or near London. The advantage of uniting this diversified group became apparent and as a result the "Fellowship of Medicine" was founded in 1918 also under the presidency of Sir William Osler. Provision was made for scientific entertainment and for the collection and distribution of information relative to hospitals, medical schools and meetings as well as social entertainment.

Shortly after the armistice a request came from the chiefs of the various Medical Services that facilities for post-graduate study might be extended to medical officers of allied countries and the "Fellowship of Medicine" with the aid of the medical schools and other hospitals started their "Emergency Post-Graduate Course" in January, 1919. The arrangements made, though of a temporary nature, proved quite successful and in October, 1919, with the sanction and aid of Sir William Osler, the "Fellowship of Medicine" amalgamated with the "Post-Graduate Association." The resulting body is known as the "Fellowship of Medicine and Post-Graduate Association" and has carried on post-graduate work without intermittance up to the present time. Nine medical schools and thirty-two hospitals are closely affiliated with this agency. The work and instruction in these institutions is being correlated so that a student desiring any possible type or combination of work can be accommodated. A central office is maintained in charge of a very efficient secretary. A monthly bulletin of lectures is issued and may be obtained on request. The Royal Society of Medicine has taken very great interest in this new organization and kindly permits the maintenance of the central office in their building at No. 1 Wimpole Street, London, W. C. 1. Students joining the "Fellowship of Medicine" also have opportunities of enjoying the hospitality of the Royal Society of Medicine, who offer to them a cordial welcome to attend their social and clinical meetings.

It is perhaps needless to emphasize the well known fact that London claims many clinical teachers of the highest distinction. And it can be assuredly stated that these men welcome most heartily their brethren from other countries. A fact worth mentioning is that those men who are the busiest and whose reputations are the greatest take unusual interest in their routine hospital and out-patient departments.

As to the future of post-graduate work in London I consider it very bright. At the present moment the Minister of Health has under submission a tentative plan for the establishment of a large central post-graduate hospital with perfect correlation of the work in all the other hospitals. Financial stringency will prevent the immediate establishment of such a school. But I am certain from what I have seen that it is only a question of time when a wonderful institution will be opened.

The American on reaching London will find himself in possession of certain immediate advantages not possible in any other foreign city. In the first place he is master of the language. In addition he is in possession of a center of advice and direction which is most efficiently conducted by his own countrymen. I refer to the British Division of the American University Union, 50 Russell Square, London, W. C. 1. This office, maintained by subscription of fifty-two American colleges and universities is of wonderful practical utility. In fact it can be truthfully stated that it is a necessity to the American scholar offering as it does so many privileges. It is beyond the scope of this article to enumerate in detail the many advantages afforded but briefly stated the following may be secured: introduction to British persons of distinction in public as well as academic life; readers tickets in the British Museum otherwise obtained with difficulty; card catalogue of hotels and lodgings; directions which save time and errors upon the part of scholars; postal privileges; advice and full information relative to courses of study and finally office staff, teas and other social opportunities.

This report of my investigation of post-graduate medical conditions in London was made at the suggestion and request of the editor. Unfortunately, I was unable to investigate carefully the other large centers for medical work in Great Britain namely, Liverpool, Manchester, Glasgow and Edinburgh but my superficial examination and inquiries indicate that excellent work may be obtained at any of these places. The English medical profession, particularly since the war, welcomes visits from American physicians and one can be assured of seeing any type of work desired.

BOOK REVIEWS

Diseases of Infancy and Childhood, Their Dietetic, Hygienic and Medical Treatment—A textbook designed for practitioners and students in medicine by Louis Fischer, M. D., Attending Physician to the Willard Parker and Riverside Hospitals of New York City; Physician in Charge of the Infatorium; Former Instructor of Diseases of Children at the New York Post Graduate Medical School and Hospital; Attending Physician to the Babies' Wards of the Sydenham Hospital of New York City; Consulting Pediatrist to the Zion Hospital of Brooklyn; Fellow of the New York Academy of Medicine, etc. Ninth Revised Edition. Volume 1. Infant Feeding and Organic Diseases, with one hundred and forty-six text illustrations, several in colors, and thirty-seven full-page half-tone and color plates. F. A. Davis, Publishers, Philadelphia.

This edition appears in two volumes. Volume 1 deals with a general outline of the anatomy and physiology of the infant, and of its digestive tract. Especial attention is given to the management of marasmic and premature infants—their supervision and feeding while in the incubator. Maternal feeding with complementary and supplementary feeding is described, and its importance in preventing deficiency diseases is explained.

Realizing that nutritional disturbances invite acute and chronic disorders, and that faulty metabolism results in scurvy, rickets, and gastro-intestinal intoxicaiton; more than one-third of this volume is devoted to the home modification of milk, and to the method of normal feeding. The chapter on Vitamines has been rewritten.

The caloric requirement of an infant from birth to two years is given, and feeding formulae calculated accordingly. A description of percentage feeding and the Pelidisi method is given.

Roentgenology as applied to diagnosis and therapeutics is described and illustrated.

In Volume II the acute infectious diseases have been rewritten. Chapters on Diphtheria and Intubation have been brought up to date. The Schick reaction is described in detail. An eruptive disease (Exanthem Subitum) occasionally met with in children, but not described in text books, has been added.

A chapter on Transfusion and its usefulness in the treatment of marasmic infants is given. The importance of lumbar puncture and its application in the differential diagnosis of the various acute cerebral infections is described. The cutaneous reaction diagnostic of tuberculosis is given in detail.

Clinical Diagnosis, Case Examination and the Analysis of Symptoms—By Alfred Martinet, M. D., Paris, France, with the collaboration of Drs. Desfosses, G. Laurens, Leon Meunier, Lutier, Saint-Cene, and Terson. Authorized English Translation from the Third, Revised and Enlarged Edition, by Louis T. de M. Sajous, B. S., M.D., Philadelphia. With 895 Text Engravings and Several Full-page Cloor Plates. Complete in Two Royal Octavo Volumes. Volume II, Analy- and Laboratory Diagnosis. F. A. Davis Com- sis of Symptoms. F. A. Davis Company, Publishers, Philadelphia.

Urine Test for Bile-Acids.—Muller found the Hay test reliable even with only 1:10,000 bile-acids. Other constituents of the urine, with the exception of unusually abundant amino-acids and ordinary drugs, do not react to or modify the response to the test. The sublimed sulphur, scattered on the surface of the urine, floats, with normal urine, while it settles to the bottom in the presence of bile-acids, as the latter reduce the surface tension of the fluid containing them.

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ANNUAL MEETING, CRAB ORCHARD SPRINGS, 1923

COUNTY SOCIETY REPORTS

Butler—The Butler County Medical Society elected G. E. Embry as delegate to the House of Delegates to the State Medical Association. Term to begin September 6, 1922.

Our county society officers are: C. C. Threlkel, President; J. H. Austin, Secretary.

On September 6, 1922, the Butler County Medical Society met in the office rooms of J. H. Austin. The names of those present were: Henry Smith and William C. Hunt, of Rochester; R. W. Kittinger, of Logansport; J. H. Austin, C. C. Threlkel and G. E. Embry, Morgantown. An interesting program and some interesting talks entertained those present.

J. H. AUSTIN, Secretary.

Fleming—At regular meeting, Oct. 11, 1922, present Drs. T. Ribelin in chair, A. M. Wallingford, Jr., W. S. Reeves, C. R. and C. L. Garr, and C. W. Aitkin.

The annual report for the year showed 13 members, 10 meetings. An average attendance of 7.4. Three in the county who are eligible for membership though not members. Three retired physicians in the county.

Diseases of the Tonsils was the subject for discussion and was discussed by all the members present. They generally agreed that in cases where there was any doubt as to diphtheria to use large doses of antitoxin. The concensus of opinion was that tonsillectomies were often done when it was unnecessary.

At the regular meeting November 8 there were present A. M. Wallingford, Jr., presiding, A. S. Robertson, C. L. Garr and Chas. W. Aitkin.

C. L. Garr and A. M. Wallingford both reported interesting throat cases.

CHAS. W. AITKIN, Secretary.

Jefferson—The 498th stated meeting of the Jefferson County Medical Society was held in the City Hospital November 6, 1922.

J. J. Wynn read a paper on "Foreign Bodies in the Eye."

C. W. Dowden reported a case of pellagra.

C. Brooks Willmott read a paper on "Congenital Syphilis.

J. B. LUKIN, Secretary.

Jefferson—The 499th stated meeting of the Jefferson County Medical Society was held in the City Hospital.

F. H. McMechan, General Secretary of the Associated Anesthetists, Avon Lake, Ohio, gave a lantern slide demonstration of the Safety First Campaign of Associated Anesthetists, the Breath-holding Test and its Practical Application and Value in the Predetermination of the Surgical and Anesthetial Risk.

J. B. LUKIN, Secretary.

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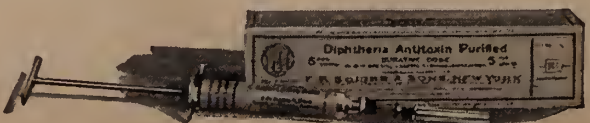

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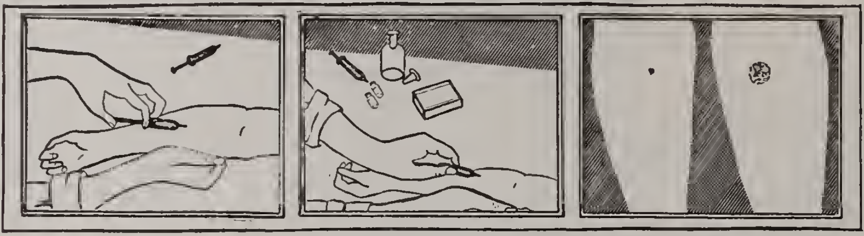

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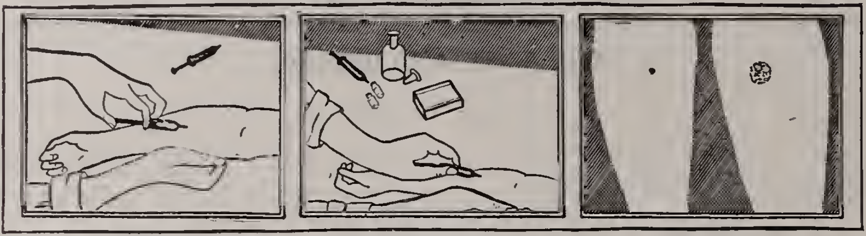

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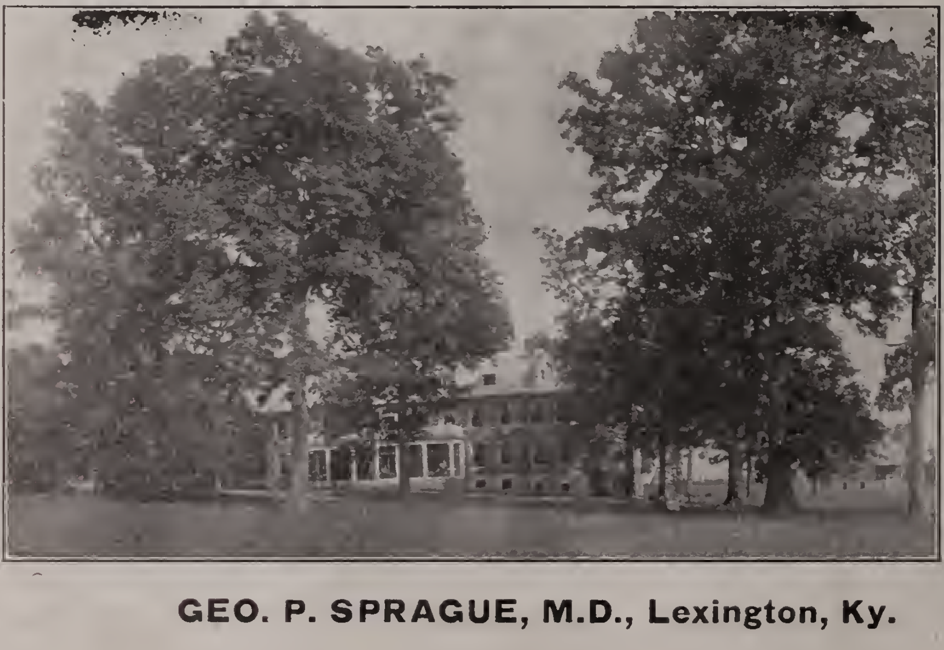

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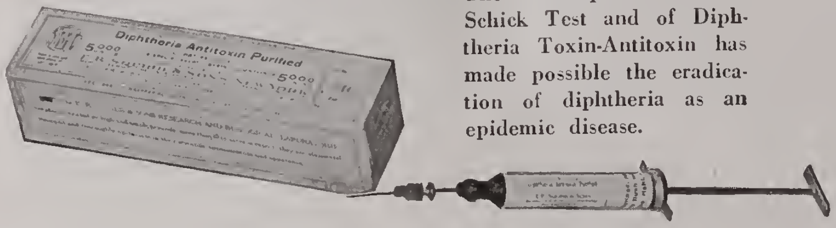

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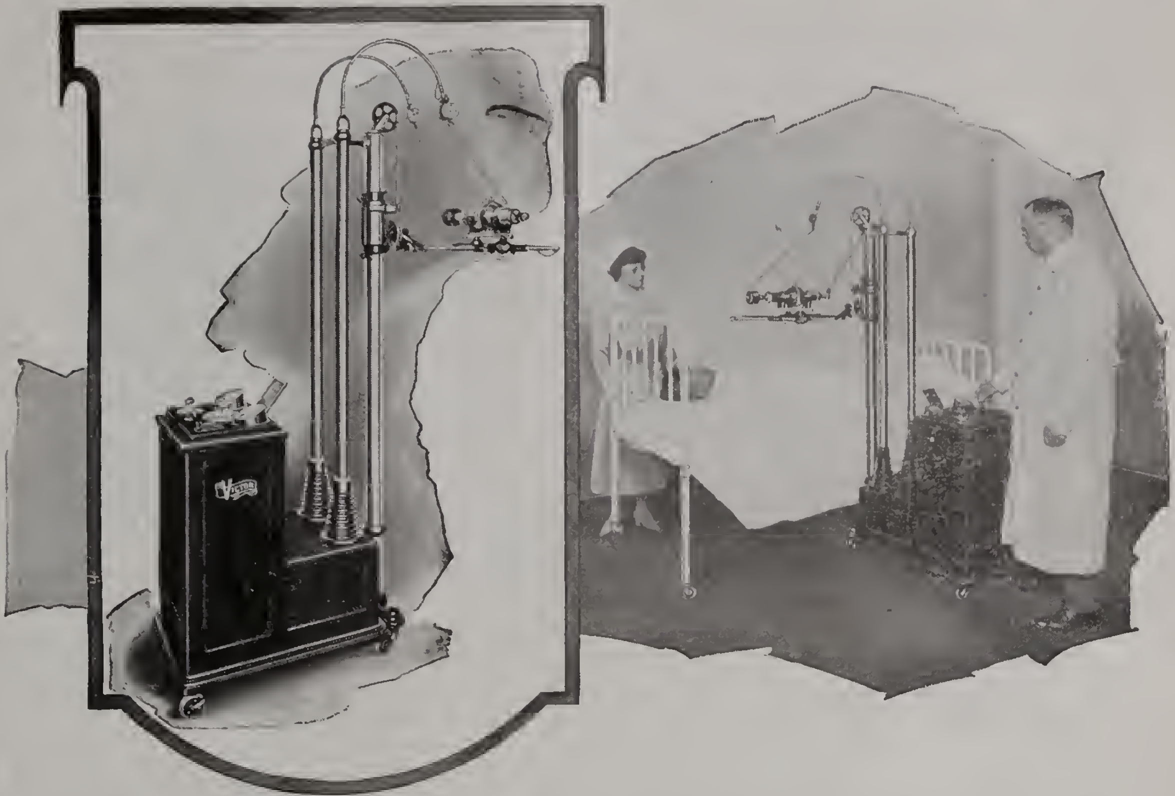

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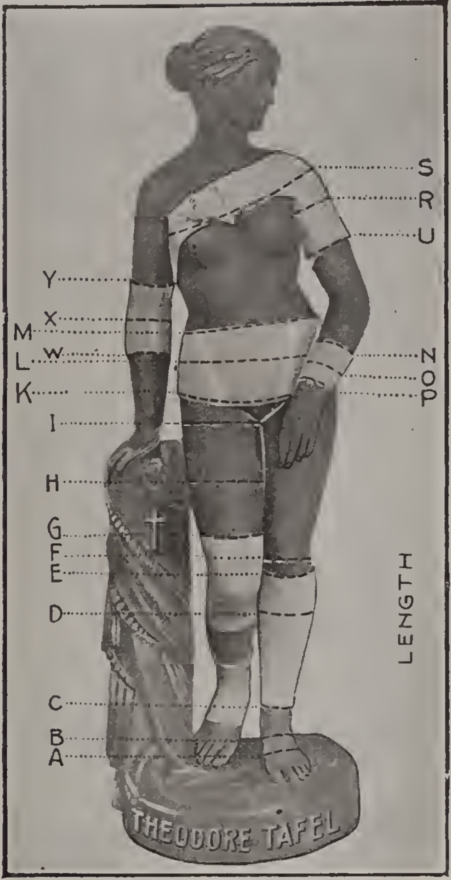

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